



# PatchView for the Enterprise (PV4E) User Manual

**Version 6.0**

**Released September 2009**

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LAN Server	SDK
PatchView for the Enterprise™	Secure Link
PatchView™	SiteBuilder™
P-LET™	SitePro™
Provisioning	SiteWiz™
PV4E™	SMART Cabling System™
PV PowerMax	SMART CLASSix™
PVMax Expander	SMART Giga™
PVMax Indicator Controller	SMART Patch Panels
PVMax Local Scanner	SMARTen™
PVMax Master	The PVMax Scanner System
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## Chapter 1: Introduction

The PatchView for the Enterprise™ (PV4E) User Guide provides complete information about the operation and maintenance of the system. It explains how to build your network database and operate the system in order to effectively manage and maintain your network's physical layer.

PV4E provides fully accurate and comprehensive documentation of all network infrastructure components as well as advanced detection and alert capabilities to allow the user full control over the environment.

For installation and minimum requirements, please refer to the *RiT Enterprise Solutions Installation Guide*.

### Product Description

PV4E is a comprehensive and efficient intelligent physical layer management system (IPLMS) that can automate and simplify both the planning and day-to-day management of networks and their associated passive and active equipment and help you to streamline your network planning, implementation and operational activities.

The application covers all aspects of operations including provisioning, maintenance, security, asset management, documentation and much more.

PV4E has been proven through successful deployments worldwide and is a comprehensive solution for automated, real-time, location-based control over connectivity and networked devices. The software drastically speeds up and simplifies daily provisioning, maintenance and security tasks. It also provides the Infrastructure and IT manager with full control of network assets as well as an integration layer that provides an open bi-directional interface to any network/operations management system.

PV4E is a web-based application on top of an SQL relational database. All the components of the physical layer are part of the database. The system provides real-time updates to the database.

The software, using a Web Interface, facilitates easy access to all information, including the ability to monitor and maintain the system from any remote location. This solution provides real-time end-to-end connectivity information, whereby the entire network can be monitored and maintained.

PV4E's unique system tracks network connectivity from the Terminal Equipment (Servers, PCs, telephones, IP phone, printers etc.) through the Physical Connectivity Component (patch panels and cables) to the Network Equipment (LAN switches, PBXs, Hubs etc.).

The network administrator is provided with real-time network visibility of the physical layer including a combined view of the horizontal and vertical cabling subsystems. The combination of the graphic images and real-time information assist the administrator in making critical decisions about Moves, Adds, Changes (MACs). In addition, PV4E also supports extended provisioning operations including swap and remove. These decisions are made for the daily maintenance of the infrastructure, network troubleshooting and documentation procedures. The network database is consistently updated to reflect the MACs of the network devices.

PV4E together with RiT's patented PVMax components (Masters, Expanders, Master Expanders, Scanners) and SMART Patch Panel technology will

efficiently manage your infrastructure and substantially reduce your network ownership costs.

## Key New Features

The following new features have been added to PV4E V.6.0

New Feature	Function
<b>Discovery Module (P-LET)</b>	
Inactive stations feature	<ul style="list-style-type: none"> <li>&gt; The inactive station removal function sets a device status according to its activity time, and removes inactive devices from its previous location.</li> <li>&gt; This feature does not work on virtual machines.</li> </ul>
Subnet scanning: <ul style="list-style-type: none"> <li>&gt; Single</li> <li>&gt; Selected</li> <li>&gt; Enable/disable selected subnets</li> </ul>	Scanning for both single and multiple subnets. An option has been added to the context menu that allows you enable/disable a subnet scan.
HSRP support	Improved support for HSRP allows you to associate multiple routers with the same subnet.
Device type resolution according to MAC prefix	This enhancement requires changes in settings that are not exposed in the GUI and will need to be performed by RiT professional services.
The Discovery Module progress tool-tip has been changed	A new subnet scanning percentage progress bar displays the progress status.
A counter has been added to the subnets in the subnet topology tree	The topology tree now shows the number of items per subnet.
Unmanaged devices connect a series of IP phones in a daisy-chain effect providing there is no more than one station on a switch port	Detecting multiple IP-phones and up to a single PC will connect the IP phones in a daisy chain, detecting more than a single PC will transform the connection to a hub.
Virtual stations	Support for virtual stations requires the station to be connected directly to a switch and not through a hub or a wireless access port.
<b>CAD Module</b>	
Expanded CAD view	CAD View has been changed and is now a floating window with an enlarged presentation space (can open to full screen view).

New Feature	Function
<b>Authentication</b>	
Active Directory Integration	PV4E user authentication is performed against the organization's active directory or the PV4E local database.
<b>GUI – New look and feel</b>	
Tree position held when toggling between PV4E modules	The tree node will not collapse if you navigate to another screen. The position is held until you return.
A new tool tip has been added to all combo boxes	The new tool tip displays the entire string when the combo box is too small to contain all the information.
Selected Menu items have been moved	<i>Event Notification</i> from <i>Tools</i> to <i>Settings</i> <i>Connectivity Zones</i> from <i>Tools</i> to <i>Settings</i> <i>Device Authorization</i> from <i>Tools</i> to <i>Settings</i> <i>System Info</i> from <i>Tools</i> to <i>Help</i> Refer to User Manual/Application
<i>View Link</i> window modification	The size of the <i>View Link</i> window can be changed (includes full view).
Navigation Tree locations	Location tree nodes can be deleted without first deleting its sub-locations
SMTP port	The SMTP port can now be edited. Default port is 25.
<b>Telecommunication Infrastructure Management</b>	
Cables per conduit	PV4E now calculates the number of cables per conduit.
Multi Cable support	New support for trunk cables, multi-pair cables and multi-fiber cables.
<b>Blade Servers</b>	
Blade Server Discovery	The system automatically identifies/consolidates and positions Blades in the chassis. Available only for Blades with type pass-through connectivity modules.
Pass-through module support	Supports Blades with pass-through configuration.
<b>Provisioning</b>	
Provisioning supports Blade server	Supports provisioning of Blade servers into enclosures.
A <i>No Service</i> type has been added	Ports with <i>No Service type</i> will not be

New Feature	Function
	considered during the provisioning process.
An option to remove specific ports when performing an Add request has been added:	Allows you to exclude a port when performing a provisioning request.
Hardware	
PV4E V6 now includes new supported hardware:	Smart LC 8-8 panel Smart LC 144 Smart LC 96 SMART CLASSix RJ-RJ UTP 24 SMART CLASSix RJ-RJ STP 24 Local Master 8 Local Master 12 Local Master 24 Multi Pair Cable, 25 Pairs Multi Pair Cable, 50 Pairs IBM BladeCenter E Chassis IBM BladeCenter H Chassis IBM BladeCenter S Chassis HP C3000 Enclosure HP C7000 Enclosure

## Key Benefits

### ■ Provisioning – Fully Automated

Enables you to assign system resources and services in a fully automated environment and, in addition, significantly improves the planning and provisioning process for data centers and work space environments. RiT's Automated Provisioning supports Move, Add, Change, Swap and Remove operations. Move and Add requests can also be performed per specific port. User defined tasks can be added to the automatic Work Order

### ■ Discovery Module

The following list highlights some of the Discovery Module's features:

- Automatic Asset Assignment  
The Discovery Module software automatically discovers devices in the network including; PCs, IP phones, printers, switches and other equipment and assigns their locations, down to the exact room and cubicle. Automatically provides complete linkage information in graphical format, granting full end to end visibility and automatically updates new locations when moves occur
- Warns of a mismatch between requested activity and real status through ongoing scanning activities

- Real-time accurate Mapping of the Network
- Switch traps provide real-time indications of any terminal equipment connections (link up) or disconnect (link down)

#### ■ **Scheduled Work Orders**

Allows you to create and assign Work Orders to technicians. Using a PDA (hand-held device) the technician is guided to the exact location. Once a Work Order is assigned, LED lights on your patch panel will light for a connection, flash for a disconnection. The database is automatically updated upon completion of the task

#### ■ **SitePro**

SitePro software is installed on a hand-held device (PDA) and provides the technician with detailed information about tasks that need to be performed in the communication room or data center or virtually anywhere else on site in real-time. SitePro guides users through their specific tasks, stores and displays extensive information and facilitates automated management and provisioning operations (See above, *Scheduled Work Orders with hand-held device*)

#### ■ **CAD Module** (refer to *CAD Manual*)

Presents a visual representation of the PV4E locations and inventory items in 2-D maps. Generates a full architectural view of the geographical setting of each asset in your entire network down to each room, hall, cubicle and desk in your enterprise.

#### ■ **Enhanced Security**

Notifies you of any cable connection, disconnection or user move in real time, allowing you to prevent unauthorized activity

#### ■ **Web-based Application**

- Allows you to access management data from remote locations
- Offers complete remote site management

#### ■ **Fault Summary**

- Provides true status of the network at any point in time
- Summarizes information in a tabular view, allowing real-time reporting of any configuration change and discrepancy

#### ■ **Cable Test Results**

Provides connectivity information regarding links between ports to the customer. The information also contains data for electrical cable tests for each port

#### ■ **Import/Export Capabilities**

Allows you to import and export off-line data from and into the PV4E database

#### ■ **Interconnect Support**

PV4E supports Interconnect panels and manages them as it would with any cross-connect panel.



■ **Location Access Permissions**

Grants PV4E user groups and also individual users various levels of access rights to edit links.

■ **Device Authorization**

Enhances the system's security support functionality. The MAC authorization module enables the user to approve existing unauthorized MAC address, authorize new address prior to Discovery Module detection and receive alerts for new MAC addresses detected by the Discovery module

■ **Incident Management**

An enhanced fault management for real-time alerts that also contains effective troubleshooting tools

■ **Active Directory Integration**

A PV4E user authentication is performed against the organization's active directory or the PV4E local database.

■ **Telecommunication Infrastructure**

Allows you to document and manage your telecommunication infrastructure's cables, pathways and provides the ability to document the cabling topology for horizontal pathways and cabling and also backbone pathways and cabling

■ **Blade Server Support**

PV4E supports Blade Servers by automatically identifying, consolidating and positioning Blades in the chassis.

■ **Pop-Up Messages**

Allows you to select events that you want to view as a pop-up message.

■ **PVMAX Scheduled/Unscheduled Events**

This feature has been developed to enable PV4E to differentiate PVMAX events, between planned links that are performed through WO/Edit Link, and arbitrary links performed in the field

■ **Inactive Stations Feature**

Improves the accuracy of your network information by automatically eliminating devices which are no longer connected to your network

■ **SiteBuilder (refer to SiteBuilder Manual)**

An Excel based utility that offers an alternative way of uploading large amounts of PV4E related information onto the PV4E database

■ **Dashboard (refer to Dashboard Manual)**

Provides role-oriented, policy-based visibility into the network infrastructure status. When specific items, such as: asset utilization information, broken links, and unauthorized patches require your attention, Dashboard lets you drill-down immediately into the relevant details before you act.

■ **SDK**

Designed to enable customers and integrators to utilize PV4E and implement its fully automated provisioning capabilities across their networks.

## Chapter 2: PV4E Overview

This chapter presents an overview of PV4E.

**Note:**

*This entire user guide contains links and references. Use the Ctrl key and point with the mouse to view references – to return to the previous position, hold down the Alt key and the left arrow on your keyboard.*

### PatchView System

PV4E is a physical layer network management system. It provides real-time information on the status of connections between users and equipment at the wiring rack, reports all connectivity changes to PV4E, and guides the system administrator in planning and implementing wiring changes. PatchView, together with PV4E, makes cable management easy, even in loaded communication centers where the front of the wiring rack is a tangled web of patch cord chaos.

PV4E also provides fully accurate and comprehensive documentation of all network infrastructure components as well as advanced detection and alert capabilities to allow the user full control over the environment.

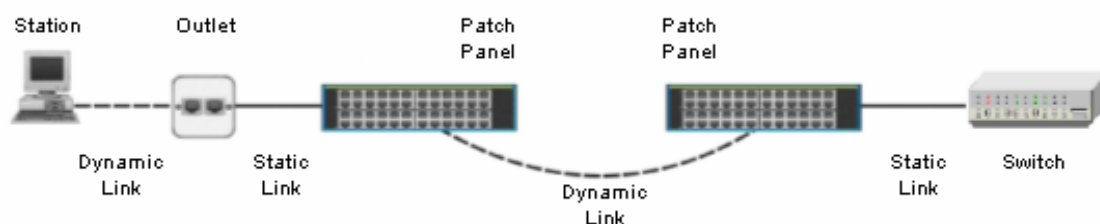
A full link is defined as one created between the station and switch with a series of connections. These connections are either dynamic or static.

■ **Dynamic Connection**

A dynamic connection refers to a movable connection. The Discovery Module detects the devices automatically while PV4E monitors the status of the dynamic or on-line links between the Patch Panels in real-time.

■ **Static Connection**

A static connection is one that is usually fixed and connected to the back of the equipment or device. As it is seldom changed it is referred to as a Static or off-line connection.



*Figure 1 - Example of a Full Link*

### PatchView Features

■ **Checks patch-cable connections**

Provides all port connectivity information. No need to manually trace wires and connections.

■ **Real-time traps report any configuration change and discrepancies**

Most wiring changes are made as a result of changes in patch-cord

interconnections on the patch panel. PatchView uses SNMP traps to immediately report any wiring changes to PV4E.

■ **Wiring Rack reconfiguration**

A link task is defined in PV4E and sent to the scanners via the SNMP agent. When the person performing the task on site is ready, the LEDs on the Patch Panels guide the user through the task.

■ The PVMax system is made up of the following components:

- PVMax Masters
- PVMax Expanders
- PVMax Master Expanders
- PVMax Scanner
- PVMax Local Scanner
- PVMax Security Controller
- PVMax Indicator Controller
- PVMax Splitters
- SMART Patch Panels
- SMART Patch Cords

## Web-based Management System

PV4E is a state-of-the-art web-based physical layer management system.

The system is accessed through a web browser and facilitates easy access to all information, including the ability to monitor and maintain the system from a remote location.

This facility provides real-time end-to-end information, whereby the entire network can be monitored and maintained.

The network administrator is provided with real-time network visibility of the physical layer including a combined view of the horizontal and vertical cabling subsystems.

As PV4E is Web-based, the only required installation is on the server side.

## Asset Management

PV4E utilizes a comprehensive, well-structured Catalog to document and manage all aspects of the network inventory. Profiles of each network component such as Stations, PatchView Components and active LAN Equipment are available. Detailed information such as Vendor information, Item Types, Functional Types and Items can be included. The exact location of each end device can be defined.

PV4E is installed with a comprehensive list of Item Types, Functional Types, Groups and Items necessary to build your database.

## Work Order Module

PV4E's Work Order Module provides a comprehensive and user-friendly system to streamline the Work Order process. Planners create Work Orders, which are then separated into individual tasks.

Each task is assigned to a technician and a completion date for the task is determined. Technicians take ownership and perform their assigned tasks. Once tasks are completed the database is automatically updated, eliminating the need for manual data entry. From Work Order initiation to Work Order completion, the status of a Work Order or of an assigned task can be monitored.

## The Discovery Module

PV4E includes the enhanced Discovery Module. This is an innovative auto-discovery network function combined with a connectivity and asset tracking system.

As the station to the connection link is dynamic, the Discovery Module simplifies the tracking of your network connectivity and assets, thereby considerably reducing maintenance costs and assuring 100% accuracy of your connections.

The Discovery Module discovers all active devices on the network and maps them with their location and link information. Information about the Station is collected during the discovery process, which includes the IP address, MAC address, Host Name and Service type. All this information is then entered into the database automatically and is available to the network administrator in a graphical representation.

The Discovery Module ensures the following added system features:

- **Network Equipment Discovery**

All Network Equipment in the network is discovered automatically no matter where it is physically located in the organization. PV4E identifies each Station and automatically creates it in the Database and the related links for each Station.

- **Asset per Location**

The Terminal Equipment location is automatically assigned. If, for example, an IP phone is moved from one room to another, the Discovery Module automatically updates the system as to the new location.

- **Utilization Module**

The Discovery Module scans the ports of all the Switches in the network. It collects information of the activity at each Switch port. The system identifies the last date and time the Station was active. The information is displayed either in the form of a report or dedicated screen and is valuable to the IT manager for management of unused ports on the Switches.

## PV4E Related Hardware

The following provides a brief explanation of the hardware used together with the PV4E system. For full details, please refer to the *PVMax Hardware User Manual*.

## PVMax Master

The Master includes the SNMP agent. It collects, saves, and transmits connectivity data from the Scanners. It consolidates the data and updates the PV4E management station on connectivity changes reported by the Scanners under its control.

The Master is connected to Scanners located in the same building and also to scanners in other buildings.

The Master can monitor up to 8 sites. Each port of the Master is considered a separate site.

The Master can also be connected to Expanders, which are connected to Scanners.

## **PVMax Expander**

Expanders increase the capabilities of the Master. You connect PVMax Scanners to the Expanders, which are connected to the Master. This allows the Master to connect to a multitude of PVMax Scanners at various sites. You can connect up to 8 PVMax Scanners to each Expander, and Expanders can be connected to other Expanders in a cascading method. This increases the number of PVMax Scanners connected to the Master.

## **PVMax Master Expander**

The Master Expander is a combination of the Master and the Expander. It is used when there is only one site in the enterprise. Like the Expander, the Master Expander increases the capabilities for scanning. Unlike the Master, only a single site may be defined when a Master Expander is used. A Master Expander cannot be connected to a Master.

## **PVMax Scanner**

PVMax Scanners are located in wiring racks at various sites. The Patch Panels are connected to the PVMax Scanners, which are connected to Expanders, or directly to the Master. Each PVMax Scanner can monitor up to 24 Patch Panels.

## **PVMax Local Scanner**

PVMax Local Scanner is a stand-alone device that manages the physical layer network. It is connected directly to the network and is able to monitor up to 6 panels. PVMax Local Scanner scans and processes the panels' physical connectivity information, and sends it via the network to the PV4E server. The Local Scanner also controls and manages the scanning algorithm.

## **PVMax Indicator Controller**

The PVMax Indicator Controller is used solely to activate the Rack Indicators.

The Indicator Controller supports up to 8 Rack Indicators.

## **PVMax Splitter**

Splitters increase the capabilities of the Scanner by allowing a PVMax Scanner to be connected to twice as many ports. Two Smart Patch Panels, each of either 24 or 48 ports, are connected to these Splitters, which are connected to the PVMax Scanner. As a result, each PVMax Scanner can be connected to 24 Smart Patch Panels. Splitters are used only with existing Smart Patch Panels. 24 of the new Smart Patch Panels are able to attach directly to one Scanner without using Splitters.

## The PVMax Scanner System

In the modular scanner system, the Master monitors a site containing a large number of ports. The Expanders and PVMax Scanners are stacked at the site and report to the Master.

The system supports scattered sites (communication centers) in the same building, or in different buildings on the campus. Only one Master is necessary to poll and save connectivity data collected from all the PVMax Scanners.

Through cascading Expanders, an unlimited number of PVMax Scanners can be connected to a Master in one site. Each PVMax Scanner functions as a relay station for connectivity data for up to 2410 Patch Panels. Each Patch Panel can contain 16, 24, or 32, or 48 ports. An unlimited number of Masters can be managed by PV4E.

For example, the Master can be connected to an Expander, which in turn is connected to 8 Expanders. Each of these 8 Expanders is connected to another 8 Expanders. Each final level of Expanders is connected to 8 Scanners, each of which monitors up to 24 patch panels. From this configuration, the Master Scanner at one site is monitoring 12,288 patch panels.

PatchView reports the connections down to the level of the patch panel port. When there is a malfunction in the system, PatchView quickly identifies the physical routing of the link between the user work outlet and the corresponding wiring rack located at the site.

## SMART Patch Panels

There are over one hundred models of intelligent data communications patch panels manufactured by RiT and suited to almost any wiring system and application. Patch panels provide a compact cabling environment for interconnection inside a LAN. A special flat cable connects each patch panel with a PatchView scanner. The scanners collect patching information and report it through the LAN.

The panels feature a full range of standards compliance such as:

- Category 6A, Category 6 and Category 6 performance for copper unshielded and shielded twisted pair
- SC, ST, LC and MT-RJ for fiber optics

LEDs on the patch panels indicate what the technician should do. When the LEDs blink, this indicates which Patch Cords should be disconnected. After all the patch cords are disconnected, the LEDs are lit in sequence, thereby indicating which ports should be connected. If you connect a patch cord to the wrong port, the system alerts you and indicates that you must remove the patch cord. At the end of the procedure, PatchView indicates that the task has been completed.

## Control Pad

The control pad is connected to a scanner and allows the technician performing the actual wiring changes on site to activate the physical link change process.

The technician can activate an automatic LED scan from the control pad. The automatic LED scan causes the LEDs of the ports to light in the sequence in which they are connected. The LED scan is used to check that all the cable

connections from the scanner to the panels are operating and connected in the correct order. If the LEDs are lit out of sequence, then the ports are incorrectly connected. There is one control pad per site.

When a link task is sent to a scanner, the Reconfiguration (Rec.) On/Pending LED on the control pad starts to blink, indicating that there is a link task waiting to be implemented (when the control pad is connected). The technician can now activate the link change process from the control pad. The LEDs on the patch panels turn on to guide the technician through the process.

Three options, Enabled, Disabled and Bypass are available for the Control pad. In the Enabled and Bypass options, you can manually scan or browse the patch panel ports by pressing the Manual Scan button on the control pad.

The following table describes the function of each option:

<b>Configuration</b>	<b>Control Pad is:</b>
Enabled	Activated and link tasks are not indicated on the patch panels until the technician presses the Reconfig On button on the control pad.
Disabled	Deactivated
Bypass	Disregarded and link tasks received by the scanners are immediately indicated by the LEDs on the panels

## Sites

The system is managed based on sites. A site is usually a single Communication room or a data center. Scanners, together with the patch panels, which they monitor, are installed in wiring racks located in the communication room of each site.

The number of sites that can be managed by one server is virtually unlimited. Remote sites can be connected to the centralized database by using additional Masters at each of the remote sites.

A site is one patching area. There can be many patching areas/sites in a Communication Room. Each site is connected to one port in the Master. Each PVMax Master can have up to eight sites. The Master Expander has only one site.

## Hardware/Software Interaction

PV4E software enables efficient and effective management of network equipment by scanning and reporting of the Patch Panel wiring configuration. As PV4E is Web-based, the system can be managed from any station on the network, including from a remote location.

Patch Panels are attached to Scanners, which are located in the wiring racks at various locations. These locations can be on different floors of a building or other buildings, either in the same area (e.g. a campus) or in other areas (e.g. different cities). The Master is connected to the Scanners. The organization network (LAN or WAN) is used to connect Masters in other buildings to create one managed system.



The Patch Panels provide a compact cabling environment for connectivity within the LAN. RiT's patch panels are equipped with LED indicators above each port that can be used to easily identify and monitor any port.

Each Patch Panel is connected by a flat cable to a PatchView scanner. The Scanners are connected to the patch panels installed at the site. Any connectivity change on the panels is collected by the Scanners and the connectivity information is reported to the Master. The Master reports the information using standard SNMP protocol over the LAN to the Server running PV4E software.

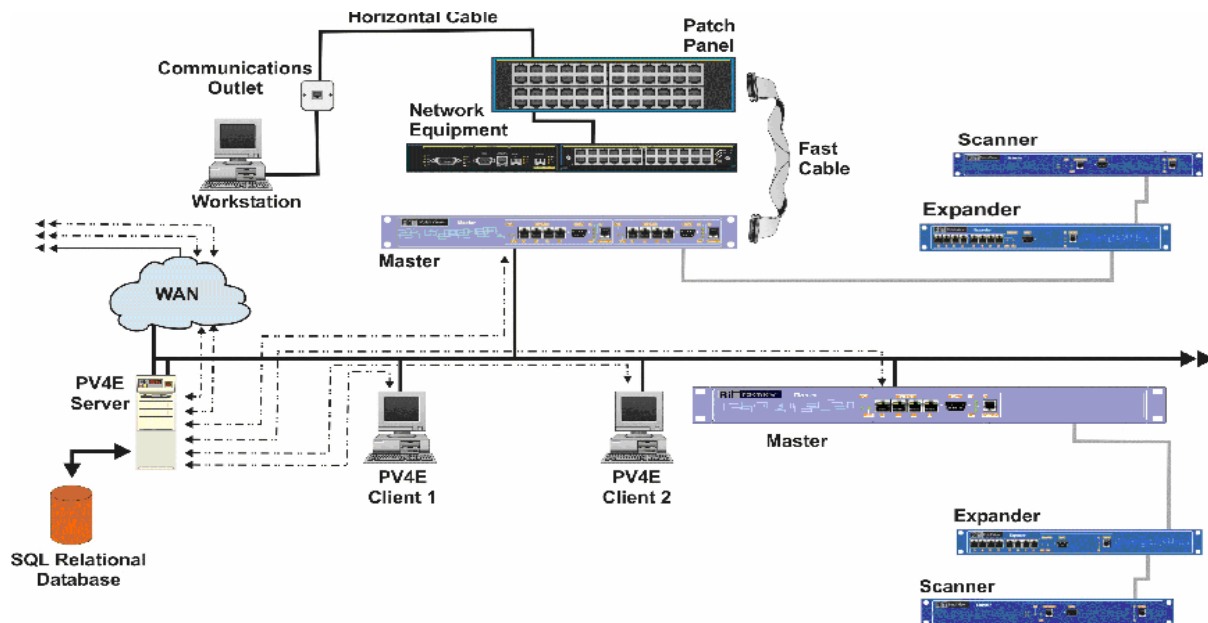


Figure 2 - PV4E/PatchView Interconnection

## Using the System

This section provides an overall picture of how the system is used and what steps you normally need to take.

The use of PV4E follows this general outline:

- Set up the infrastructure  
This first stage involves the installation of the PVMax elements including components such as panels, masters and expanders. Subsequently, you need to make all the physical connections to the PVMax system. Please refer to the *PVMax User Manual*.  
After completing the site preparation, install the SQL database and PV4E software.
- Run PV4E and Configure the System  
Build the database. Start by adding catalog items as required see **Chapter 4: The Catalog**.  
In the maintenance window, map your physical network by defining the locations of your inventory: countries, cities, buildings, floors, rooms and cubicles. Then stock your locations by assigning the assets in each location. The auto-naming function is a central tool that helps build the assets by allowing you to sequentially label assets such as modules and ports.  
The infrastructure for input includes all elements between outlets and

patch panels, then between patch panels and switch ports with names and locations. This includes the rooms (where the outlets are located), racks, panels and switches.

- **Build Your *Network Topology***

Once the assets have been populated into the PV4E repository, you need to define the initial connectivity. All of your work is logged and can be referenced for future use.

Executing a Work Order triggers the LEDs on the patch panels to show the field technician exactly which ports must be connected or disconnected. A control pad connected to a scanner allows the technician performing the actual on-site changes to activate the physical link change process.

At this point, the connectivity between outlets and switch ports is defined.

- **Prepare to Run the Discovery Module and realize the Entire Network**

The Discovery Module is a network tracking system that discovers and recognizes connectivity changes in the network and informs the user of the changes.

In order to run the Discovery Module, you must first configure the LAN Mapper settings. The LAN-Mapper is a Discovery Module that discovers all active devices in the network and their subnets. After defining the appropriate LAN Mapper Scheduler and LAN Server settings, you should also ensure that software switch trap settings are enabled on all network switches and in the PV4E settings (**Chapter 9:** on page 383).

- **Run the Discovery Module**

The Discovery Module discovers and maps the different devices it finds to their actual physical locations and updates the PV4E inventory accordingly. This provides a complete description of the end-to-end connectivity of all devices in the network.

After the Discovery Module has finished its initial run, verify the results by checking the event log and looking for Unmanaged Devices. These devices are a list of devices found that could not be assigned for various reasons. Also look for each “No Location” in the list, which indicates that a device may have been disconnected or shut down.

- **Finish the System Setup**

You can define various system settings (**Chapter 13: PV4E System Settings** on page 471). These include permissions, event notifications, message filtering, system tables (adding and deleting icons, adding and deleting Work Order task types, adding and deleting location category type), Work Order ID names and other options.

Congratulations! You have now finished the initial work required to setup up PV4E and define the connectivity of your system.

- **System Maintenance**

After the PV4E system is initially defined, any changes and modifications are part of regular system maintenance. The regular maintenance is mostly done through Work Orders (**Chapter 8: Work Order and Managing Links** on page 355) where you make any desired moves, additions or changes (MACs) to items in the network. The change is implemented as a Work Order that automatically updates the system when it is completed.

If PBXs reside in the network, their internal map of extensions can be imported manually to PV4E to update its connectivity.

Additional maintenance tasks include security measures (Chapter 10: Security on page 306), updating the PBX data (Chapter 12: Importing PBX Data on page 341), performing backup and restore procedures,

defining and maintaining secure links, generating reports and monitoring the Event Log.

## Chapter 3: Getting Started

Please refer to the *RIT Enterprise Solutions Installation Guide* for system specifications and requirements for PV4E. The guide contains the following:

- PV4E System Requirements
- PV4E Minimum Requirements
- PV4E Deployment Server Requirements
- PV4E Client Requirements
- SQL Server Configuration
- SQL Remote Configuration
- Installing PV4E

Also contained in The *RIT Enterprise Solutions Installation Guide* are the pre-requisites and requirements together with all other essential information required to install the following modules:

- Extended Driver Pack (only relevant for customers who have purchased the extended driver pack).
- CAD
- PV360 Dashboard
- SitePro

Information about backing up and restoring the PV4E database can be found in *Appendix A* at the end of this document. It contains the following important information:

- Backing-up and restoring the PV4E database
- Stopping the PV4E service
- Backing-up the database
- Restarting the server
- Restoring the PV4E database
- Stopping the server and restoring the database

### Running PV4E

When PV4E has been successfully installed you can log into the application via your browser.

### Logging into PV4E

#### To login/open PV4E

1. Open the Internet Browser and type the path into the Address window. If you are working on the computer where PV4E server is installed, type: `http://local computer name/pv4e` If you are working from a client, type: `http://host name/PV4E`
2. Press **Enter**, the PV4E login window opens.

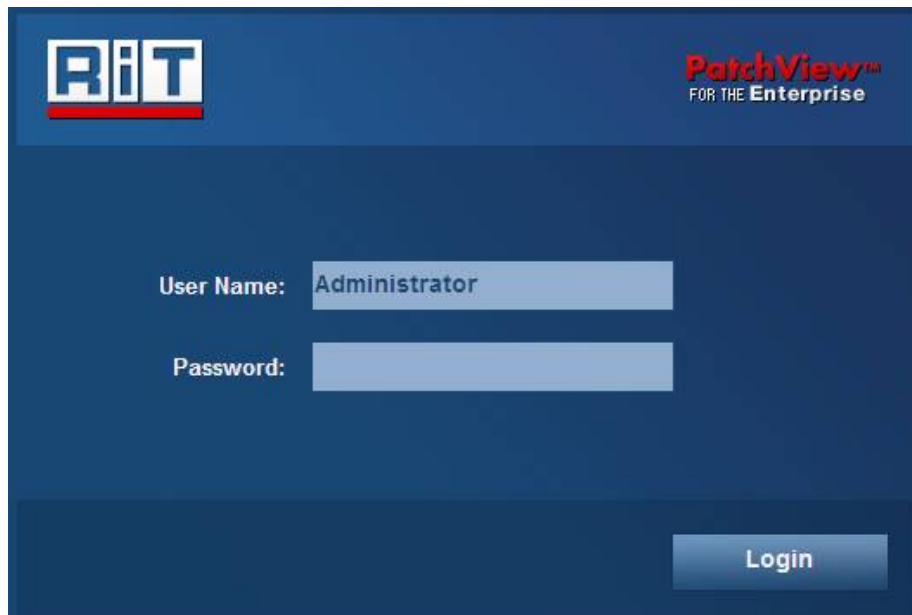


Figure 3 - PV4E Login window

3. Type in your User Name and Password.  
The default settings are below and are case-sensitive. We strongly recommend that you change these settings as soon as possible:

User Name = Administrator

Password = [blank]

4. Click the Login button.

When launching PV4E for the first time, a message appears.



Figure 4 – Internet Explorer – Security Warning Message

5. Click **Install** to continue.

PatchView for the Enterprise opens.

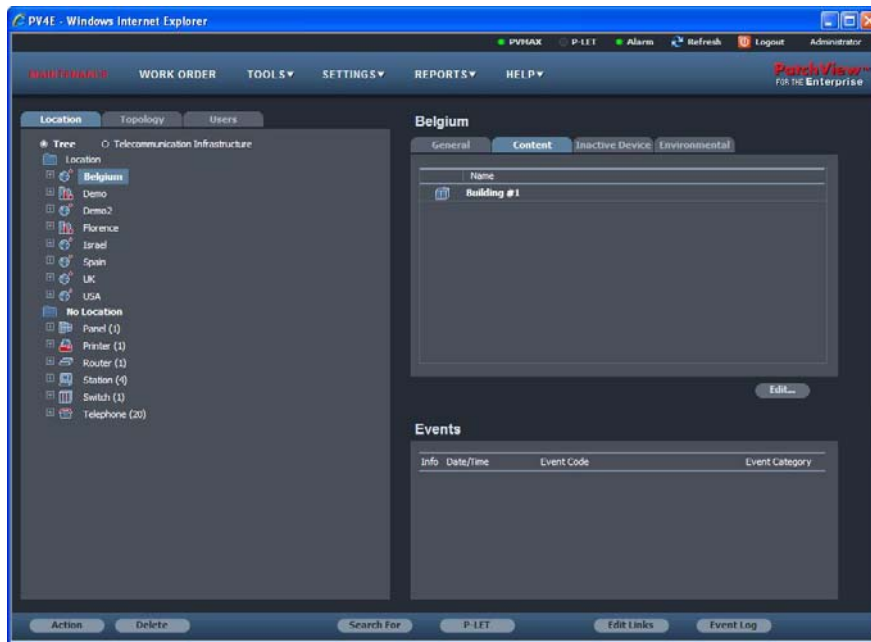



Figure 5 - PV4E Opening Screen

The default is set to open in the Maintenance window as it is here that most of the activity in PV4E occurs. When this window opens for the first time after installation, there is no information pane, as this only appears after an item is added or defined within the database.

## Logging out of PV4E

### > To logout/close PV4E

Click the Logout Icon  and confirm by clicking the **OK** button, or.  
Click the X icon located in the top right hand corner of the screen.

## PV4E Graphic User Interface

PV4E has an easy to use interactive GUI, designed to allow the operation of the software to run with optimum efficiency and effectiveness.

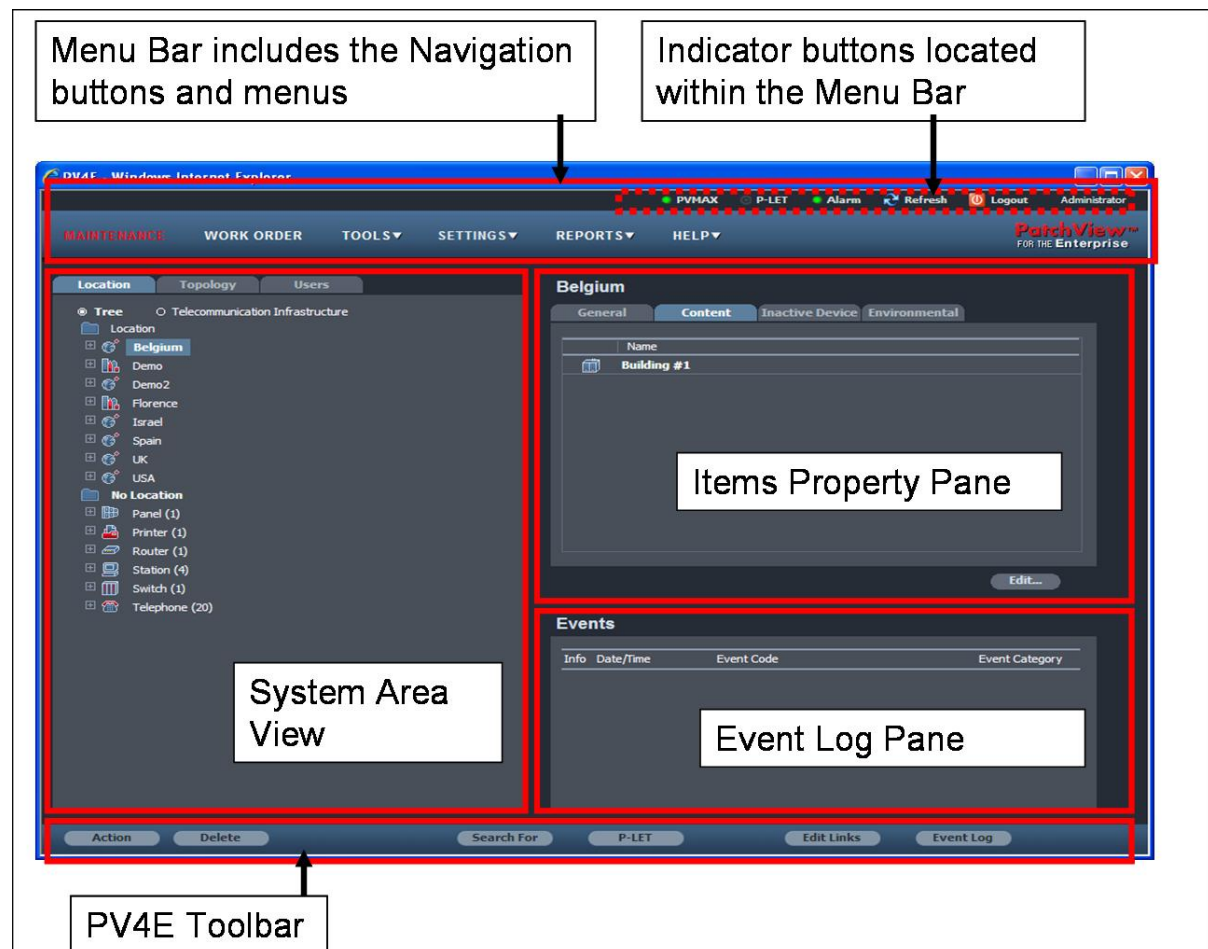


Figure 6 - PV4E Graphic User Interface

## About the GUI

The GUI is divided into two main areas:

The System View Area located on the left hand side of the screen. In this pane the user can view and access the tree of the module selected, or select other tabs, e.g. *Topology* and *Users*.

Data Information is located on the right hand side of the screen. This area is divided into two panes:

Information Pane

This contains the data of the selected item in the System View.  
Different tab options are available depending on the module that is currently being accessed.  
The Edit option is available in this pane.

Event Log Pane

This log records all events that occur in the application.

## Inventory Tree

The inventory Tree provides a graphic representation of the hierarchy of the database. They have been designed to facilitate easy navigation through the different levels. Each Functional Type and Item has its own distinctive icon for easy recognition.

You can add, edit, delete and view database items from the inventory Tree by using menu commands or shortcut menus.

### > To move around the trees

1. Double-click an object in the tree or click the plus sign icon (+).  
The next node /level is displayed.
2. Click the minus sign icon (-) to close the lower levels.
3. Clicking on any object in the tree, in any level opens its Item Property screen with the relevant information.
4. Select and right click on an item to get the shortcut menu specific to that object.


## The Menu Bar

The Menu bar is located below the application title bar and contains the navigation buttons for the different modules, alert/indicator buttons and the Refresh and Logout radio buttons.

## Navigation Buttons

The navigation panel fonts are red when active and white when inactive.

When clicking on the Maintenance, Work Order or Reports links/labels you are taken directly to their relevant modules.

The Tools, Settings, Reports and Help labels have dropdown menus. This is shown by the white triangle  in each button. The dropdown menus become active when you click the label on the menu. The dropdown menus are:



TOOLS▼	SETTINGS▼	HELP▼
Auto-Detect	Catalog	Help...
PBX Import ...	Scheduler	System Info
Import from a File	Permissions	About...
Export to a File	Msg. Filtering	
Device Locator ...	System Tables	
System Status	Work Order	
Device Authorization	PatchView Elements	
	PBX	
	Mail Configuration	
	Event Notification	
	Cable Test Results	
	Connectivity Zone	
	P-LET	
	Call Manager	
	Software Upgrade	
	Metric Specifications	

*Figure 7 - Tools, Settings, and Help dropdown menus*

The options in the dropdown menus for *Tools* and *Settings* are described in detail in their relevant sections.

## Help

Help provides information about PV4E and on-line help.

The *Webpage Dialog* box contains information about the version you are using.





Figure 8 – Help – Webpage Dialog box

## Alert/Warning Indicators

There are four alert/warning indicator buttons located in the menu bar, below the navigation buttons. The following table defines their relevance.

Button	Color	LED	Means
PV	Green		System on-line
	Red		System off-line
PVMax	Green		System on-line
	Red		System off-line
P-LET	Gray		Not Active
	Blue		LAN Mapping Active
	Yellow		Unmanaged device
	Green		LAN Server Active

Button	Color	LED	Means
Alarm	Green		No new events have been added
	Red		New events have been added

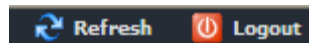
**Note:**

*When standing on a P-LET LED indicator, a tool tip appears and displays the IP address and subnet for that item and also shows the progress status*

**Note:**

*The Alarm indicator is green when you log into the system. It changes to red when events have occurred and reverts to green only when these events are viewed in the Event Log or when you restart the application.*

## Refresh and Logout Buttons



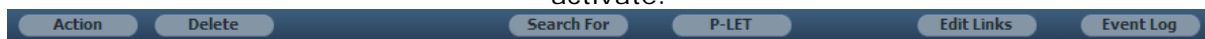
The refresh button updates the GUI with changes made to any items in the database.

The Logout button when clicked, gives you an option box. Click **OK** to exit/logout or Cancel.

## The Toolbar

A toolbar, which contains labels for frequently used menu commands, is located at the bottom of the screen. The toolbars vary according to the active module. The function of each label and its submenu is discussed in the appropriate chapters of the user guide.

The application opens in the Maintenance module with the Maintenance toolbar activate.



## Shortcut Menus

Instead of using the menu bar to activate a command, you can select and right click on an item/s to activate a short-cut menu. The context-sensitive shortcut menus provide quick and easy access to your most frequently used functions, for example: Add, Edit, Delete and Search.

## Pop-up Messages

A pop-up message functionality has been added for all possible events in PV4E V5.0 that allows you to view events, as they happen.

To enable pop-ups, you must be logged into the PV4E application.

## Selecting Events to Appear as Pop-Ups

From the main PV4E screen select **Settings** > *Msg. Filtering*.



The following *Msg. Filtering* window opens:

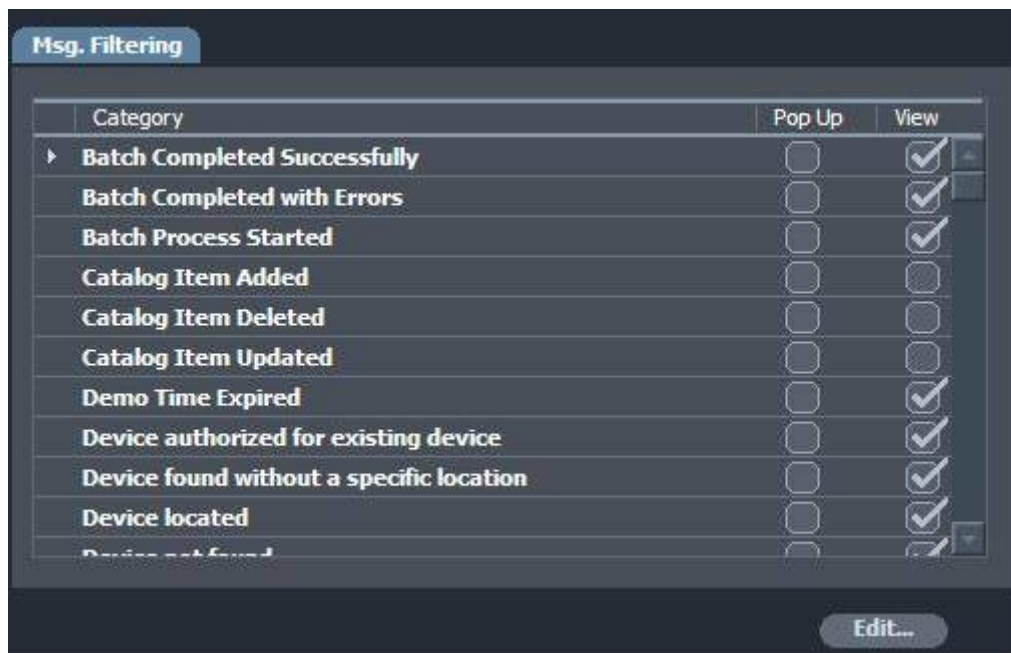


Figure 9 - Pop-up – *Msg. Filtering* Window (Edit)

To select events, click **Edit**. The following *Msg. Filtering* screen opens.



Figure 10 - Pop-up – Msg. Filtering Window

By default, the events *Pop Up* fields are empty. Click the box of the events that you want to appear as a pop-up message. Scroll down using the scroll bar to view all events. Click **Apply** and **OK**.

## Pop-up Example



*Figure 11 - Pop-up Example*

If a pop-up message is displayed before a previous pop-up message is closed, they appear on the screen together.

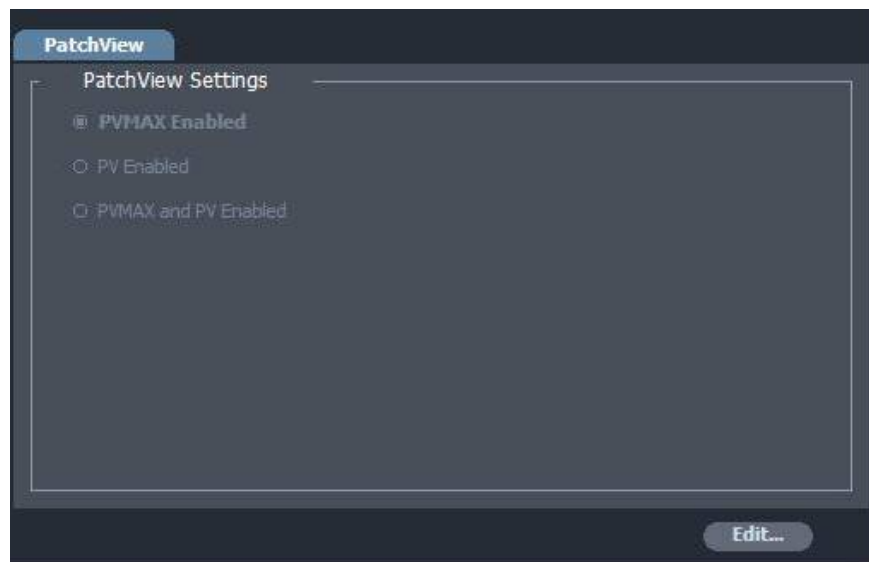
To close pop-up click **Close**. Click **Close All** to close all open pop-ups.

## Selecting the Hardware Environment

Based on the hardware environment you are using, you should select the appropriate option.

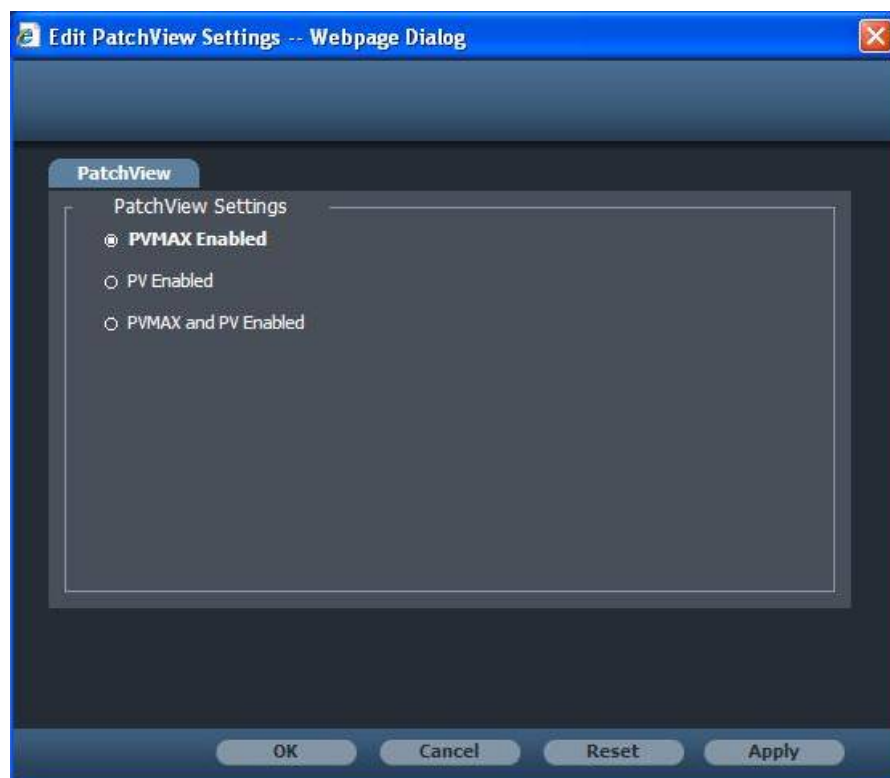
### > To select a hardware environment

1. From the **Settings** menu, select **PatchView Elements**.  
The PatchView property pane opens.



*Figure 12 - PatchView Property Pane*

2. Click **Edit**.  
The Edit PatchView Settings dialog opens.



*Figure 13 - Edit PatchView Settings dialog*

3. Select the required option.  
The default option is PVMax Enabled.
4. Click **OK**.  
PV4E now shows only the selected functionality.

## Searching for Equipment

The PV4E system includes a powerful search tool for finding any database items such as stations, switches, connecting hardware and users. Search results display the exact location of the searched items. This also allows the device to be verified or edited.

Search allows the System Administrator to quickly find assets in large networks, speeding the process of resolving maintenance or security related problems.

There are different search options depending on the database item specified in the search. The following general search instructions are followed by an example.

There are two main types of searches:

Specific item type

For this search you need to select the item type for the search.

Global search

Allows you to search for any equipment, IP address or location. This search is flexible in that you are not required to know the item type.



> **To Search for a Specific Item Type**

1. At the bottom of the Maintenance module, click the **Search For** button and select the class of item to be searched.



*Figure 14 - Search Tool Selection*

A search dialog appears. The search window options vary depending on the type of item being searched.

For example, select Connecting HW > Panel.

2. If you are searching for a specific item, select one or more fields for the search criteria by selecting options from the dropdown lists or typing in data.

For example, selecting the Class as Copper and Catalog Name as SMART GIGA 24 UTP.

*Figure 15 - Item Search dialog*

3. If you doing a Global search, enter data in one or more fields for the search criteria or browse for a Location. You cannot search for users in a global search.

**Note:**

A wildcard feature is supported when performing a global search. It allows you to increase the breadth of a search by using the symbols '\*' Enter the wildcard in the Name field.

Figure 16 - Global Search window

4. Click **Search Now** to begin the search.  
The search results window opens. The total number of records found appears in the bottom left corner.  
You can click on results that appear in blue to display the properties in the properties pane for the specific device or user.

Name	Catalog Name	Type	IP Address	Location
<b>Cable A-C 1</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 10</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 11</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 12</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 2</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 3</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 4</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 5</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 6</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 7</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 8</b>	Duplex	Horizontal and Vertical		\Florence\BLD A
<b>Cable A-C 9</b>	Duplex	Horizontal and Vertical		\Florence\BLD A

Page 3 of 8 Pages. (Total Records: 396)

Figure 17 - Search Results Window

Different options are available in the properties window, depending on the items being displayed. For example, most items have an **Edit** button available, while a network item has a **Ping** button available where applicable.

At any time you can change the search specifications by clicking the Criteria button and changing the search details. Subsequently, clicking on the results button returns the previous search results.

## GUI Related Issues

### Rack Presentation ("U" Counting Order)

A new feature has been added to configure the measurement method of the "U" position in the rack. Currently, PV4E measures the "U" position in the rack from top to bottom.

This feature supports configuration of the measurement method from both top to bottom or bottom to top. The order can be set in either the catalog as default or in the inventory (if the need arises to overwrite the default order).

### Enhanced Support of U Counting Order

In order to enable more flexibility in defining the counting order every rack will be associated with its own counting order. Changing the U order of an occupied rack will leave the devices in the same physical location but the "U" position naming will change.

For example, a 45U rack with a top-bottom order and a device is located in the highest position (1U). Changing the U order will leave the device in the highest position but will now be called 45U.

## Edit Link Icons

This update introduces a new enhancement to display user edited icons in the Edit Link module. The icons loaded by the user will be displayed.

## Connecting HW – Default Tab View

Upon selecting a connecting HW item (panel or outlet) the Properties view opens on the Ports tab instead of the General tab.

## Search

The Search module has been extended to carry an extended option to present and search ports for the relevant items using a wildcard.

Port side search for back or front is supported.

This option is implemented for the following search options:

- Outlets
- Panels
- Switch
- PBX

The Search option of the above elements has an additional "Include port Name" checkbox where the default value of the checkbox will be unchecked. Once this option is checked, an additional fields are added to the grid presenting the port name.

Activating the View Link from a specific port presents only the link of that specific port.

*Figure 18 - View Link to Specific Port*

In the event that the checkbox is marked, an edit box field is displayed enabling the user to search for a specific port name.

*Figure 19 - Edit Box Field Display*

All regular grid options (such as resize columns, sort, etc.) will be available.

## WO Reports

*Note: The PV4E reports (not report center) are no longer a supported feature of PV4E*

## WO Task Reports

The PV4E update includes an enhancement to the WO task report module.

The WO task report has been modified to appear in landscape layout and the tasks are presented in tabular layout (not as one task per page). A checkbox has been added to the first column of every task.

The "Sort Order" field has been renamed to "Task Sorting Order" and a "Scanner Execution" option has also been added to it.

The tasks will be sorted in the following order:

- Link tasks (connect/disconnect) will be sorted in the order they are performed by the scanner, relevant to the time the report is generated (in PVMAX all pending tasks are at the beginning followed by tasks that have not been sent to the scanner).
- All non link tasks are sorted in the order entered by the user.

The screenshot shows a software interface titled "Work Order - Detailed View". It has two tabs: "General" and "Criteria", with "Criteria" currently selected. Below the tabs is a list of filter criteria, each with a corresponding input field or dropdown menu:

- WO ID: All (dropdown)
- Created By: All (text input)
- Priority: All (dropdown)
- Status: All (dropdown)
- Created Date: 09/10/2009 (calendar icon and date input)
- Due Date: 09/10/2009 (calendar icon and date input)
- WO Sorting Order: Due Date, Priority (dropdown)
- Task Sorting Order: Task Due Date, TaskStatus (dropdown)
- Location Steps #: (empty text input)

At the bottom right of the dialog is a button labeled "Run".

Figure 20 - Work Order Tasks Report Setting dialog

Work Order Tasks - Detailed View

Search Criteria				Sorting Criteria	
WO ID:	All	Primary:	Scanner Execution		
Engineer:	All	Secondary:	Task Status(Default)		
Task Type:	All				
Task Status:	All				
Task Due Date:	All				
Matching Items Found : 10					

WO ID	Task #	Description	Engineer	Status	Due date	Created Date	Task Type	Location A	Location B
<input type="checkbox"/> WO-07/09/200 S-00001	1	Disconnect Panel p1 , Port 06 From Panel p1 , Port 22		Cancelled	09/07/05 12:05	09/07/05 12:05	Break Link	No Location	No Location
<input type="checkbox"/> WO-14/09/200 S-00003	1	Disconnect Panel p2 , Port 14 From Panel p2 , Port 30		Cancelled	09/14/05 16:48	09/14/05 16:48	Break Link	IRoom 01\Rack 01[3]	IRoom 01\Rack 01[3]
<input type="checkbox"/> WO-07/09/200 S-00001	2	Disconnect Panel p1 , Port 15 From Panel p1 , Port 31		Cancelled	09/07/05 12:05	09/07/05 12:05	Break Link	No Location	No Location
<input type="checkbox"/> WO-14/09/200 S-00003	2	Disconnect Panel p2 , Port 15 From Panel p2 , Port 31		Cancelled	09/14/05 16:48	09/14/05 16:48	Break Link	IRoom 01\Rack 01[3]	IRoom 01\Rack 01[3]

Figure 21 - Work Order Tasks Report

## Work Order Report

The report has been modified to appear in landscape layout and the tasks are presented in tabular layout. A checkbox has been added to the first column of every task.

The "Sort Order" field has been renamed to "WO Sorting Order"

A "Task Sorting Order" option has also been added to the criteria with the same options of the WO Tasks Report.

**Work Order Tasks - Detailed View**

**General** **Criteria**

WO ID	All
Engineer	All
Task Type	All
Task Status	All
Task Due Date	All
Task Sorting Order	Task Due Date, TaskStatus
Location Steps #	

**Run**

Figure 22 - Work Order Report Setting

WO ID: WO-07/09/2005-00001

Description:		Subreport: WorkOrderTaskDetail	
Priority:	1		
Due Date:	09/07/05		
Status:	Completed		
Created By:	Administrator	Closed By:	
Created Date:	09/07/05	Time:	12:05
		Closed Date:	
		Time:	

Tasks

WO ID	Task #	Description	Engineer	Status	Due date	Created Date	Task Type	Location A	Location B
<input type="checkbox"/> WO-07/09/2005-00001	1	Disconnect Panel p1 , Port 06 From Panel p1 , Port 22		Cancelled	09/07/05 12:05	09/07/05 12:05	Break Link	/No Location	/No Location
<input type="checkbox"/> WO-07/09/2005-00001	2	Disconnect Panel p1 , Port 15 From Panel p1 , Port 33		Cancelled	09/07/05 12:05	09/07/05 12:05	Break Link	/No Location	/No Location

Figure 23 - WO Report

## Chapter 4: The Catalog

### Catalog Overview

PV4E is designed specifically to manage your enterprise, which is a complex system of networks and related entities. This network is made up of Hardware, Software and Connecting Components. These are defined and stored in the Project database and are the logical representation of your entire enterprise.

The Catalog of PV4E is located in the PV4E Settings Module of the application.

Item Types, Functional Types, Classes and Items are defined in the Catalog. Defining new catalog items is the first task required in setting up a project.

Defining the classes and items in the Catalog is usually a one-time operation. The Catalog contains a detailed list of all available components that will be assigned to a specific Location in the enterprise.

During the installation process, PV4E installs a comprehensive predefined list of items necessary to operate an enterprise. New Items can be added to the Catalog at any time and Items can be edited and deleted.

The hierarchy of the Catalog Tree has been predefined into Item Type, Functional Type, Class and Item.

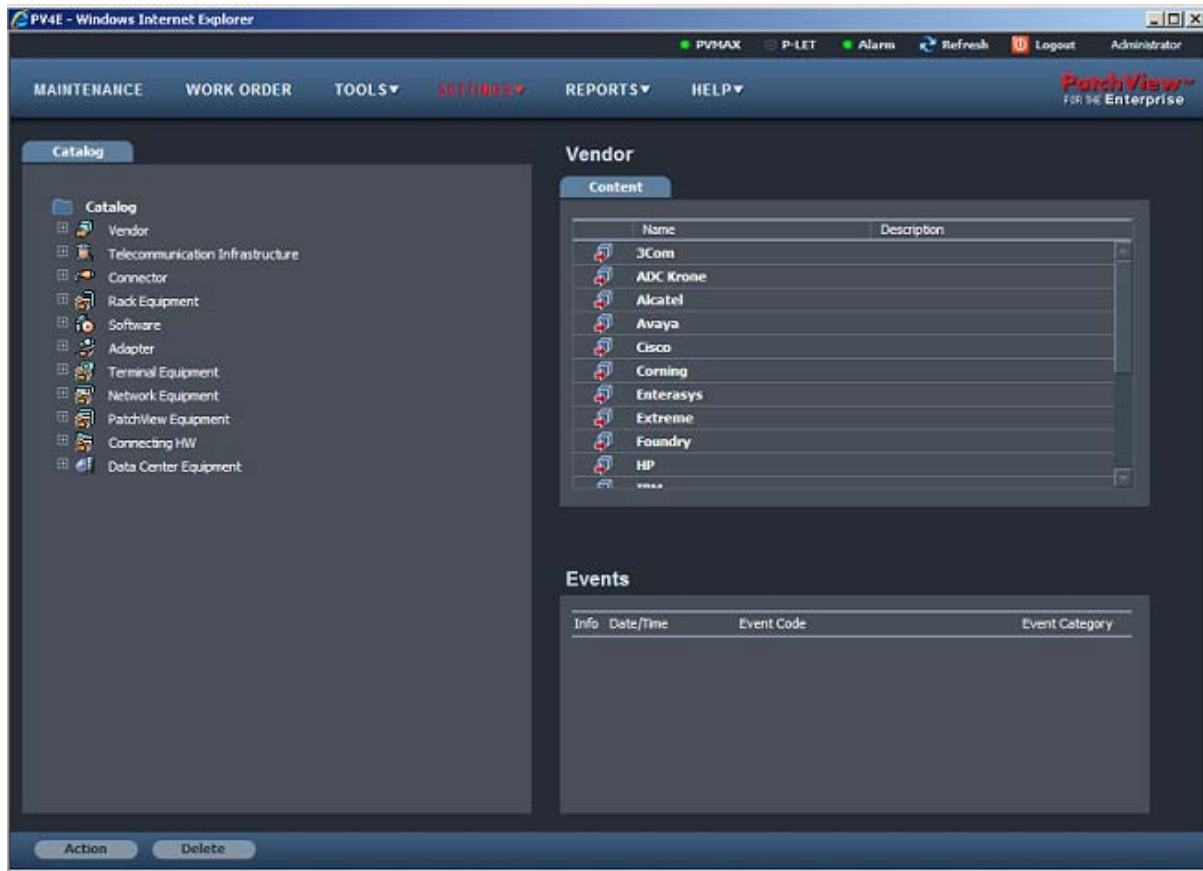
### Catalog Window

The Catalog window is divided into three areas. These are:

- **Catalog Tree**  
This is located on the left hand side of the screen and all Items can be accessed via this tree
- **Data Area**  
This is located on the upper right hand side of the screen. Data changes to reflect the information of the item selected on the tree.
- **Events View**  
The application's standard events view which is in "Always on top" mode.

> **To open the Catalog Window**

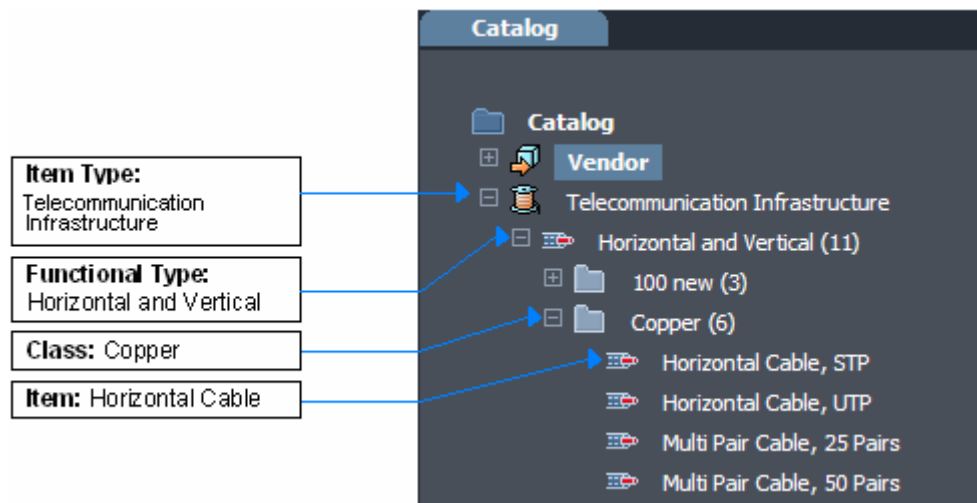
Select and click **Catalog** from the **Settings** pull-down menu. The Catalog window opens.



## Catalog Items

Items in the Catalog have been divided into four different categories. The Item Type is the first level in the tree. The order of the next three levels is Functional Type, Class and finally Item.

PV4E has predefined the Catalog Item Types and Functional Items. These are automatically installed in the database during the installation of the system.





*Figure 24 - Example of Catalog Items in the Tree*

## Item Type

Item Type is the classification according to which you sort Catalog items, and is the first level of the Catalog tree hierarchy. The Catalog is divided into default Item Types. Additional Item Types cannot be added to the list. The user inserts Classes or Items directly under Vendors and Racks only.

The Catalog is divided into the following Item Types:

Item Type
Vendor
Telecommunication Infrastructure
Connector
Rack Equipment
Software
Adapter
Terminal Equipment
Network Equipment
PatchView Equipment
Connecting Hardware
Data Center Equipment

## Functional Type

Every Item type in the Catalog is subdivided into Functional Types with the exception of Vendors and Racks. For example, PatchView for the Enterprise has subdivided the Item type 'Terminal Equipment' into the following Functional Types: IP Phone, KVM Device, Printer, Station and Telephone.

Functional Types are predefined and installed with PV4E. Additional Functional Types cannot be added. Both Classes and Items can be listed under a Functional Type.

Item Type	Functional Type
Vendor	
Telecommunication	Horizontal and Vertical

Item Type	Functional Type
Infrastructure	
	Patch Cord
	Pathway
	Trunk Cable
Connector	Copper
	Fiber
Rack Equipment	Cabinet
	Cable Organizer
	Rack
	Shelf
	Spacer
Software	Application
	Operating System
Adapter	NIC
	Modem
	KVM
	SCSI
	Monitor
Terminal Equipment	IP Phone
	KVM Device
	Printer
	Station
	Telephone
Network Equipment	Switch
	PBX
	Router
	Hub

Item Type	Functional Type
PatchView Equipment (PV)	PV Control Pad
	Master Scanner
	Satellite Scanner
	Security Controller
PatchView Equipment (PVMax)	Exander
	Local Scanner
	Master
	Master Expander
	PVMax controller
	PVMax Control pad
	PVMax Scanner
Connecting Hardware	Outlet
	Panel
	Pass-through
Data Center Equipment	Environmental Control

## Class

Classes can be added to the Catalog tree either directly under the Item Type as in the case of Vendor and Rack or under Functional Types. A Class is added and named by the user in order to categorize items for easy reference.

Each specific item can be sorted according to its appropriate class.

You can add additional classes as well as edit or delete classes as and when required.

Classes for certain Item Types and Functional Items have been installed in the database during the installation process.

## Item

PV4E has predefined all the items that are necessary to build your project or Enterprise Network. An Item is the actual product, either software or hardware, that is used in your network. Items can be allocated to specific classes.

Additional items can be added and all items can be edited or deleted as and when required.

## Adding, Editing and Deleting Classes

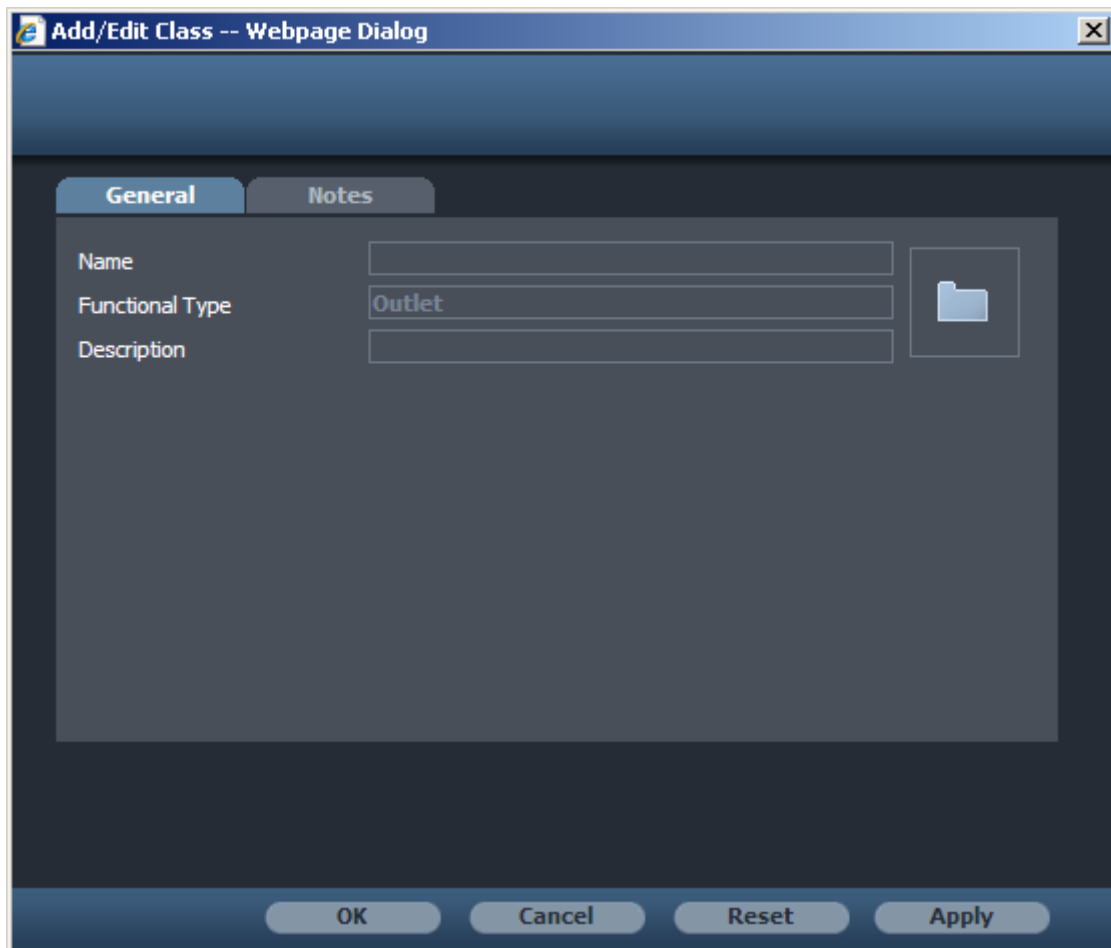
The following section explains in detail how to Add, Edit and Delete Classes in the Catalog.

### Adding a Class

Classes can be added to the Catalog tree. A Class is added and named by the user in order to categorize items for easy reference. Items can then be listed under a specific class in the Catalog Tree.

#### To Add a Class

1. Select the Item Type to which you want to add a Class.
2. The Add Class dialog can be accessed in the following manner:
  - Right-click the Item in the Catalog tree and select the **Add Class** function from the pull-down menu.
  - The Add/Edit Class dialog opens.



*Figure 25 - Add/Edit Class dialog*

3. Type in the name of the class.
4. Add the Description (Optional).

**Tip:**

*Keep the description short and relevant as this will be used as a Sort criterion.*

5. Select the Notes tab to add a note about the class (Optional)
6. To assign a new icon please see Assigning Icons to a Catalog Item or Class.

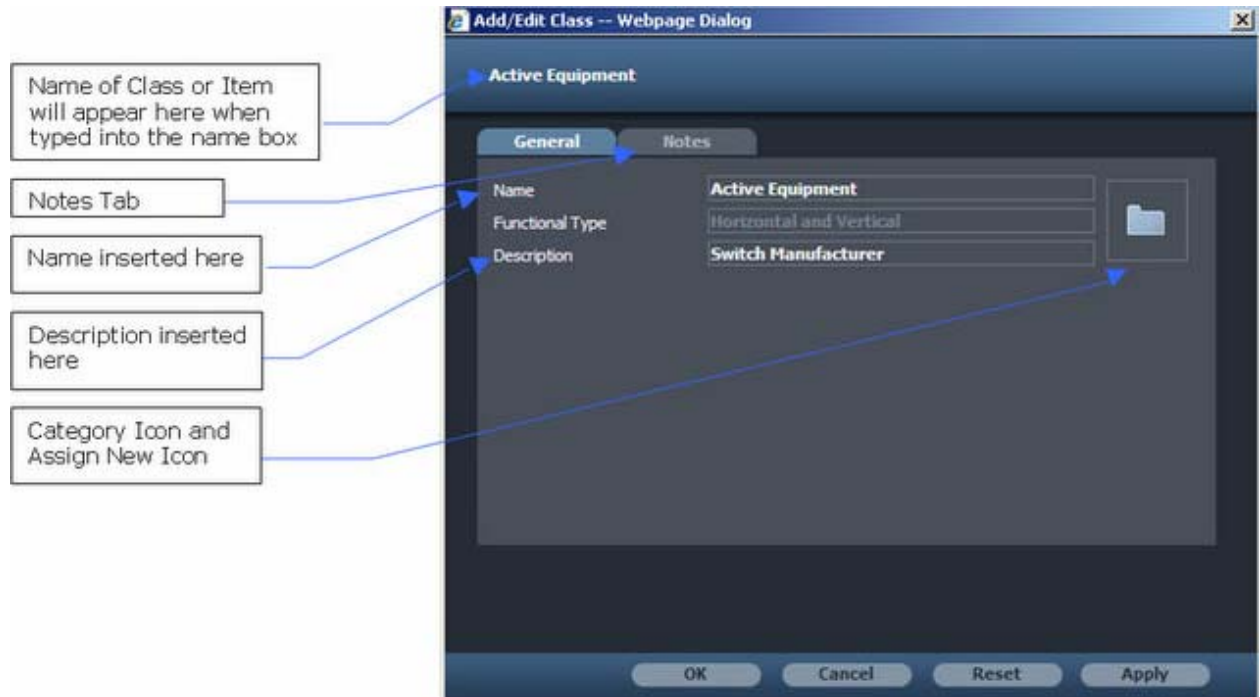


Figure 26 - Adding a Class

7. Select one of the following options to proceed:

Button	To...
<b>Apply</b>	Save the new information. The dialog remains open
<b>Reset</b>	Reset dialog to its previous settings
<b>Cancel</b>	Cancel the entry if Apply was not previously selected and close the dialog
<b>OK</b>	Save the entry and close the dialog

## Editing a Class

You can edit a class at any time.

When a Class is selected in the Catalog tree, information will appear in the Data Area. There are three Tab options available:

General – A brief description of the Class

Content – Provides a list of Items listed under this class

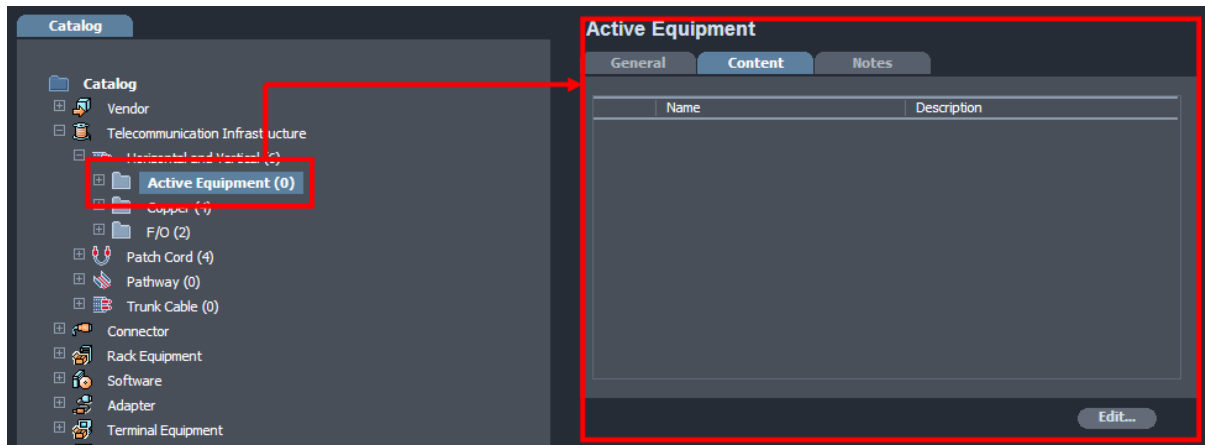
Notes – Contains the notes written previously about this class (optional)

**Note:**

*The Content tab will only appear if there are items listed under the class.*

**To Edit a Class**

1. In the Catalog tree, click on the name of the class that you would like to edit. The information will appear in the Data Area.



*Figure 27 - Editing a Class*

2. The Edit Class dialog can be accessed in three ways:
  - Right-click the selected Class in the tree and select Edit from the pull-down menu.  
Or:
  - Click on the **Action** button in the Catalog Toolbar and Edit  
Or:
  - Click on the **Edit** button in the Data Information Pane.  
The Add/Edit Class dialog will open.
3. Edit the class and click on **OK** to save and exit from the dialog.

**Deleting a Class**

Classes can be deleted from the Catalog.

**Note:**

*When deleting a class, ensure that no items are listed under that class. If there are any items listed under the class, move them to another class or delete them from the database before attempting to delete the class.*

**To Delete a Class**

1. In the Catalog tree, locate and select the Class you want to delete.
2. The Delete command can be accessed in two ways:
  1. Right-click the Class in the Catalog tree and select the Delete function from the pull-down menu  
Or:
  2. Click on the **Delete** button in the lower Catalog Toolbar strip.  
A message appears asking you to confirm the deletion.

3. A dialog box opens. Click either the **OK** or the Cancel button to proceed. The selected Class will be deleted from the Catalog tree and from the database

#### **To delete a multiple selection of Classes**

1. In the Catalog tree, locate and select the first Class that you want to delete. For a consecutive list hold down the <Alt> key and select the list.  
For a non-consecutive list hold down the <Ctrl> key and select the individual Classes
2. The Delete command can be accessed in two ways:
  1. Right-click on the selection and select the Delete function from the pull-down menu  
Or:
  2. Click on the **Delete** button in the Catalog Toolbar.  
A message appears asking you to confirm the deletion.
3. Click either the **OK** or the Cancel button to proceed. The selected Classes will be deleted from the Catalog tree and from the database

## **Adding, Editing and Deleting Items**

Items can be added to the Catalog at any time. These Items can be edited or deleted as long as they are not being referenced by an inventory item in a specific Location.

A comprehensive list of Items is automatically installed in the database during the installation of the system.

The procedure to add an item to the Catalog is basically the same for all Items. The information fields for specific Items vary and can include additional steps.

The following section explains in detail how to Add, Edit and Delete Items in the Catalog.

#### **Note:**

*The Catalog Item Types are arranged in logical order. RiT recommends that you add items according to the order in the Catalog Tree. Information added to the first item is available in drop down lists for later items. For example if you add a number of Vendors, they are available in a drop down list for use in every catalog item.*

## **Adding an Item**

When adding items to the Catalog, it is important to add them in a logical order. For example, when you add a Connector to the Catalog, you will need to specify the Vendor or supplier of the Connector. First define the Vendor or supplier before defining the Connector.

An Item can be added to an existing Class, or an existing Item can be assigned to a different Class.

#### **To Add an Item**

1. Select the Item Type, Class or Functional Type to which you want to add an Item.

2. The Add Item dialog can be accessed in two ways:
  1. Right-click on the selected Item Type, Class or Functional Type and select the Add Item function from the pull-down menu  
Or:
  2. Click on the **Action** button in the Catalog Toolbar and Select Add Class

**Note:**

*The first option will be used to describe all the Add processes in this topic chapter. Both options will open the Add/Edit Class dialog.*

Figure 28 - Example of an Add/Edit Catalog Item Screen


3. Type in the relevant information for the selected item in the various tabs. See *Edit Items* for information on the different tabs.
4. Select **OK** or another of the options to proceed:

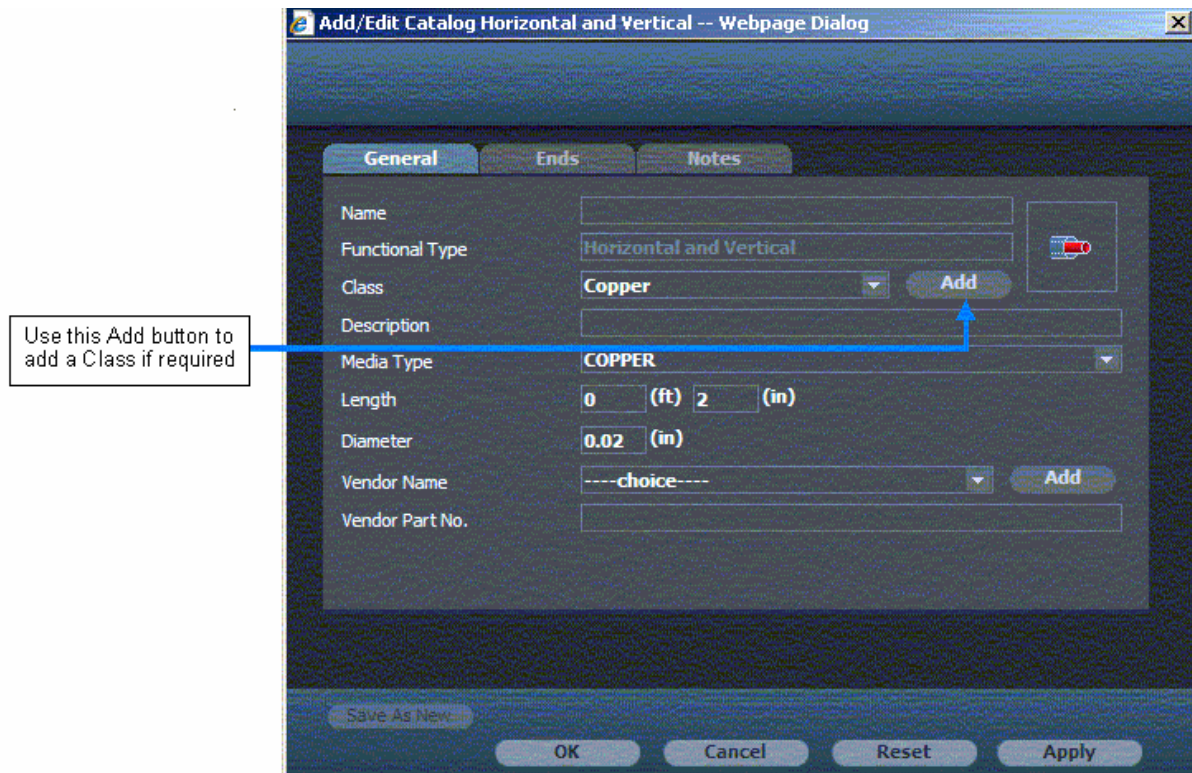
**To Add an Item to a Class**

Items can be added directly under a specified Class in the Catalog tree.

1. Select the Class in the Catalog tree, to which you want to add an Item.
2. Right-click on the selected Class and select the Add Item function from the pull-down menu.



3. Select the Class that you wish the item to be listed under by clicking on the  button and select a class from the pull down list. If the specific class has not been defined it can be done now by clicking on the Add button and filling in the required information for the new class. Click the **OK** button to return to the Add/Edit window.



*Figure 29 - Adding A Class Add Button*

4. Type in the relevant information for the new item.
5. Select **OK** or another of the options to proceed.

#### **To Add an Existing Item to a Class**

It is possible to change the class that an item is listed under. In this example the Item 'International Switch Manufacturer' will be moved from the Class 'Active Equipment' to 'Comprehensive Company Suppliers'

1. Select the specific Item in the Catalog tree.

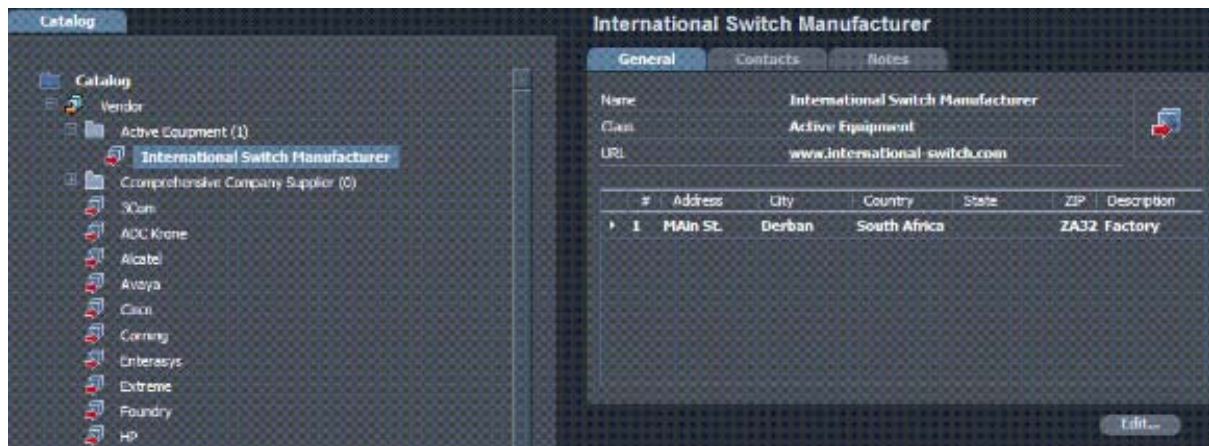



Figure 30 - Example of Item listed under a Specific Class

2. Right-click on the selected Item and select the Edit function from the pull-down menu.

3. Select the Class that you wish the item to be listed under by clicking on the  button and select a class from the pull down list. If the specific class has not been defined it can be done now by clicking on the Add button and filling in the required information for the new class. Click the **OK** button to return to the Add/Edit window.
4. Click the **OK** button to exit this dialog.

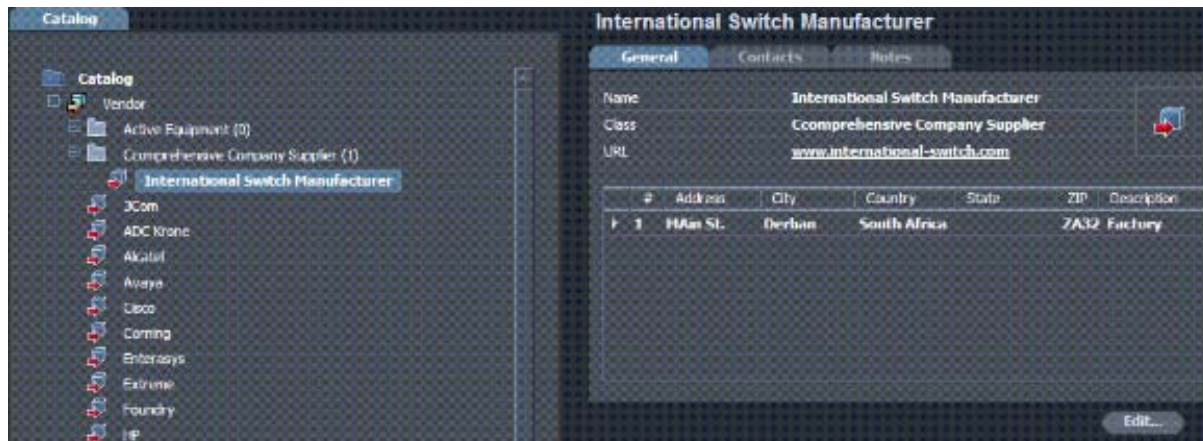


Figure 31 - Example showing the Item under a different Class

## Editing an Item

An Item can be edited at any time. When an Item is selected in the Catalog tree, information will appear in the Data Area Pane. The tabs available in the dialog will vary depending on the Item selected.

### To Edit an Item

1. In the Catalog tree, click on the Item that you would like to edit. The information will appear in the Data Area pane.
2. The Edit Item dialog can be accessed in three ways:
  1. Right-click on the selected Item in the tree and select **Edit** from the pull-down menu.  
Or:
  2. Click on the **Action** button in the Catalog Toolbar and Edit.  
Or:
  3. Click on the **Edit** button in the Data Information Pane.  
The Add/Edit Class dialog will open.
4. Edit the information.
5. Click on the Save As New button to save the information as a new item. This function allows you to create a new item using all the existing information of an existing Item and only changing one of the parameters.

## Deleting an Item

An Item can only be deleted if it has not been referenced in the inventory.

### > To Delete an Item

1. In the Catalog tree, locate the Item you want to delete.

2. The Delete command can be accessed in two ways:
  1. Right-click on the Item in the Catalog tree and select the Delete function from the pull-down menu.  
Or:
  2. Click on the **Delete** button in the Catalog Toolbar.  
A message appears asking you to confirm the deletion.
3. Click either the **OK** or the Cancel button to proceed. The selected Item will be deleted from the Catalog tree and from the database.

> **To Delete a Multiple Selection of Items**

1. In the Catalog tree, locate and select the first Item that you want to delete. For a consecutive list hold down the <Alt> key and select another item on the list. All items between these items will be selected.  
For a non-consecutive list hold down the <Ctrl> key and select the individual Items
2. The Delete command can be accessed in two ways:
  1. Right-click on the selection and select the Delete function from the pull-down menu.  
Or:
  2. Click on the **Delete** button in the Catalog Toolbar.  
A message appears asking you to confirm the deletion.
3. Click either the **OK** or the Cancel button to proceed. The selected Items will be deleted from the Catalog tree and from the database.


## Adding Specific Items to the Catalog

This section specifies how to enter new catalog items into the catalog. The section supplies representative items per type

### Adding a Vendor to the Catalog

A Vendor is any source from which you procure the Hardware and Software Equipment you use in your network.

#### > To Add a Vendor

1. In the Catalog tree, right-click on the Item Type Vendor and then select Add Item from the pull-down menu. The *Add/Edit Catalog Vendor* dialog opens.
2. Type in the name of the vendor.
3. Type in the URL if required.
4. Select a Class (optional) if previously defined by clicking on the  button and select a class from the pull down list. A class can be added by clicking on the Add button and filling in the required information.

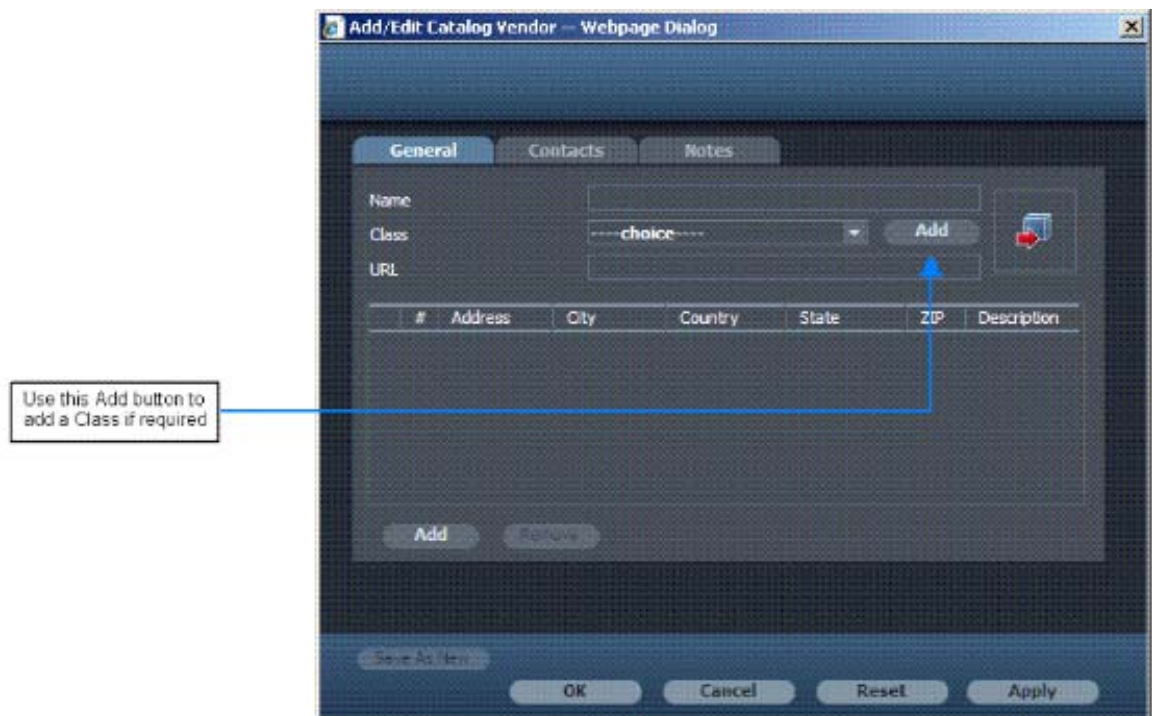


Figure 32 - Using Add Buttons

5. To insert an Address for this item, click the lower Add button (Optional).
6. Fill in the address/es as follows:



	#	Address	City	State	Country	ZIP	Description
▶	1	Str. or Building name	City or Town	Optional	Choose	Optional	Optional

Diagram showing arrows indicating field relationships:

- An arrow points from the 'Index' box to the first row (number 1).
- An arrow points from the 'Insert these fields' box to the 'City' field.
- Arrows point from the 'Insert these fields' box to the 'State', 'Country', and 'ZIP' fields.

Figure 33 - Adding an Address

7. To add another address to this Item, click on the Add button. The indicator moves to the active address line. Add the relevant information.
8. To remove an address, click on the address line that you want to remove. The ▶ indicator moves to the active address line. Click the Remove button.
9. Click the Contact tab to add further information to this Vendor (Optional).
10. To assign a new icon please see *Assigning Icons to a Catalog Item or Class*.
11. Select OK/Apply to finish the procedure.



Figure 34 - Example of Item listed under Class

## Adding Cable (Patch Cord/ Horizontal and Vertical) to the Catalog

Cables are used to connect all the components of the network.

### > To Add a Telecommunication Infrastructure Item

1. In the Catalog tree, right-click on a Cable Functional Type.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Cable* dialog opens.

**Add/Edit Catalog Horizontal and Vertical -- Webpage Dialog**

**CLASSix SMART UTP Jumper P-C**

**General** | Ends | Notes

Name: CLASSix SMART UTP Jumper P-C

Functional Type: Horizontal and Vertical

Class: Copper

Description: Blue Wire

Media Type: COPPER

Length: 2 (m)

Diameter: 0.02 (in)

Vendor Name: ----choice----

Vendor Part No.: R3228xx

*Figure 35 - Add/Edit Catalog Cable dialog*

3. Enter the relevant information.
4. Select the Ends tab to enter the Connector information.

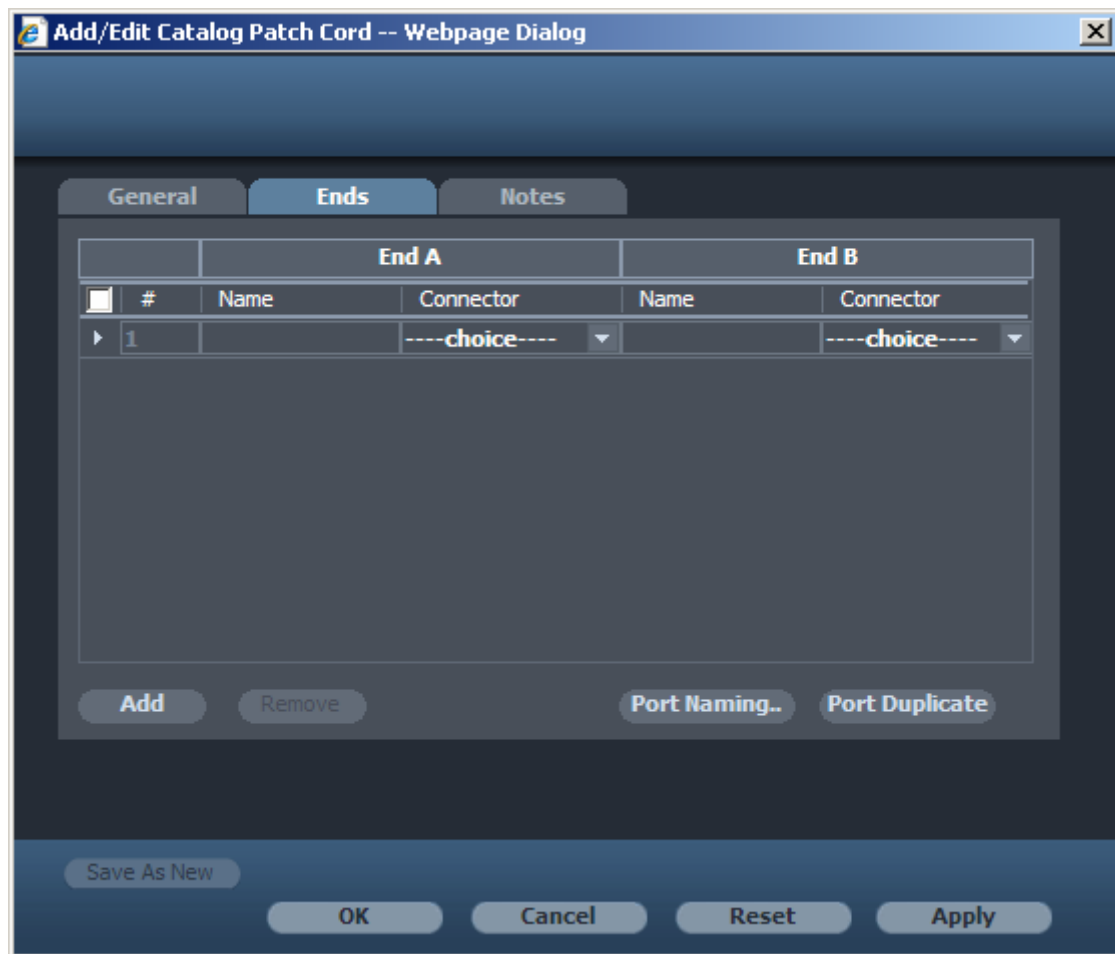


Figure 36 - Ends Tab

5. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
6. Select **OK** or another of the options to proceed.

## Adding Trunk Cable to the Catalog

Trunks are grouped cable.

### > To Add a Trunk Cable

1. In the Catalog tree, right-click on a Trunk Cable Functional Type.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Cable* dialog opens.



**Add/Edit Catalog Trunk Cable -- Webpage Dialog**

**General** | Cables | Notes

Name:

Functional Type:

Class:

Description:

Material Type:

Length:  (m)

Diameter:  (in)

Vendor Name:

Vendor Part No.:

*Figure 37 - Add/Edit Catalog Cable dialog*

3. Enter the relevant information.
4. Select the Cables tab to enter the bundled Cable information.

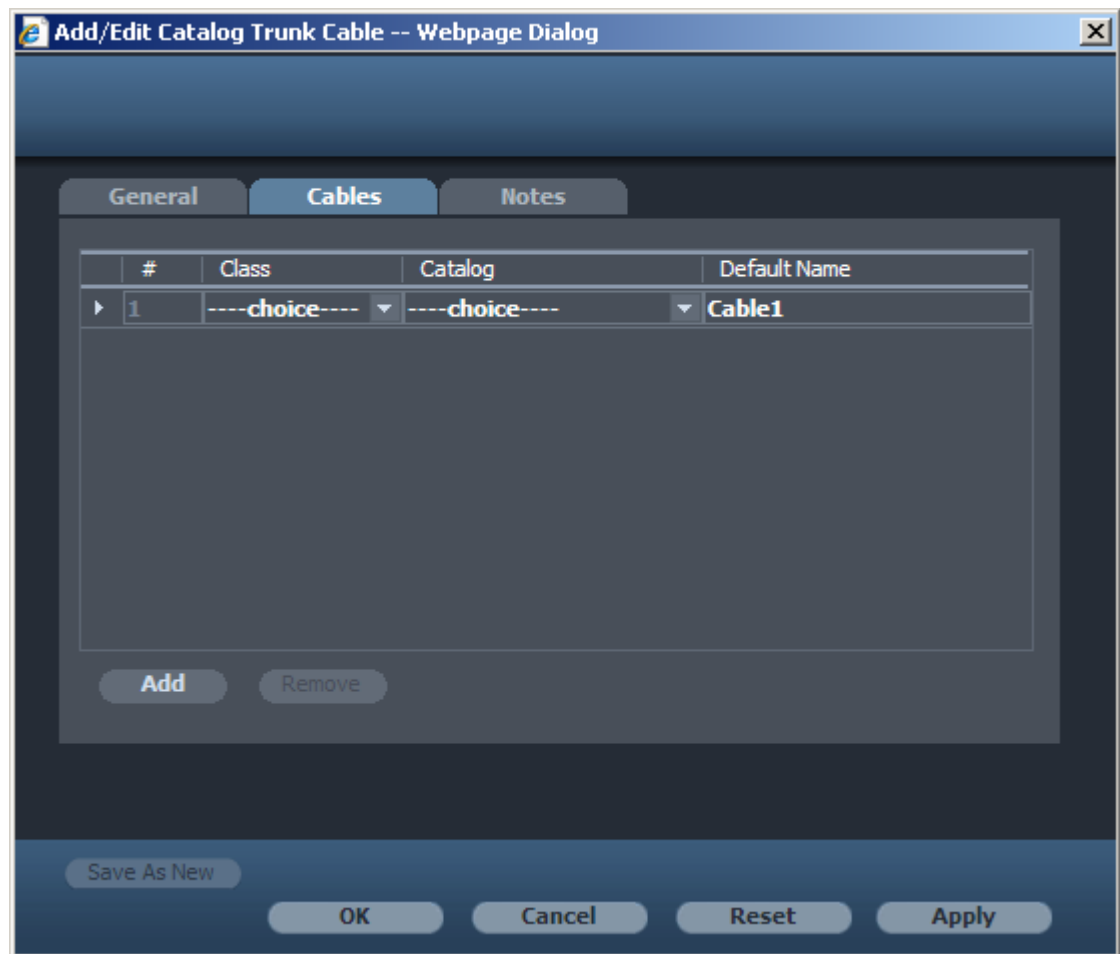



Figure 38 - Ends Tab

5. Type in the name and select one of the options available in the Class and Catalog windows by clicking on the  button.
6. Click the Add button to insert more ports if required.
7. To remove a port, click on the relevant line of information. The ▶ indicator moves to the active line. Click the Remove button.
8. Select **OK** or another of the options to proceed.

## Adding a Pathway to the Catalog

1. Right-click **Pathways** and select **Add Item** from the context menu. The following screen opens at the *General* tab:

**Note:**

The **Maximum** capacity and **Recommended** fields must be populated in order to add a cable to a pathway.

2. Enter the following details

<b>Name:</b>	Enter name		
<b>Functional Type:</b>	Pathway is entered by default		
<b>Class:</b>	Use the drop-down menu to change class to <i>conduit</i> or <i>raceway</i> . Click <b>Add</b> to add a new pathway type		
<b>Description</b>	Free text. Enter description of pathway.		
<b>Material Type:</b>	Select either plastic or metal from the drop-down menu		
<b>Maximum Capacity</b>	The maximum number of pathways that	<b>Recommended</b>	Suggested number of pathways (user

can be placed  
on a pathway

defined)

**Vendor Name**

Enter from the drop-down menu. Click **Add** to insert a new Vendor.

**Dimensions Tab:**

Add height width and length of the cable.

**Adding a Connector to the Catalog**

Connectors are added to the Catalog, and are then used when defining the ports for the following Item types:

Adapters

Cables

Connecting Hardware

Terminal Equipment

Active Equipment.

The Item Type Connector has been divided into two Functional Types:

Copper

Fiber Optic

**Note:**

*The copper\fiber type will be used to validate the connection of the physical link i.e. fiber won't be connected to copper.*

> **To add a Connector**

1. In the Catalog tree right-click on a Connector Functional Type i.e. Copper or Fiber Optic.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Connector* dialog opens.

**Add/Edit Catalog Fiber -- Webpage Dialog**

**LC Fiber Optic**

**General** **Notes**

Name: LC Fiber Optic

Functional Type: Fiber

Class: ---choice--- **Add**

Description:

Vendor Name: RiT **Add**

Vendor Part No.: LC 359 FO

Type: ☒ N/A ☐ Male ☐ Female

No. of Contacts: 0

**Save As New** **OK** **Cancel** **Reset** **Apply**

*Figure 39 - Add/Edit Catalog Connector dialog*

3. Enter the relevant information.
4. Select either N/A, Male or Female for Type by clicking on the radio button.
5. If relevant, enter the correct number of contacts for the Connector.
6. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
7. Select **OK** or another of the options to proceed.

## Adding Rack Equipment to the Catalog

A rack is a frame where equipment, that manages your enterprise, is housed. Rack equipment includes the racks/cabinets themselves, as well as, equipment installed on the racks.

The Rack Equipment is divided into five Functional Types:

Cabinet

Cable Organizer

Rack

Shelf

Spacer

**Note:**

*Before adding rack equipment to the Catalog, know the 'U' measurement of each item.*

> **To add Rack Equipment**

1. In the Catalog tree, right-click a Rack Equipment Functional Type.
2. Click Add Item from the right-click menu. The *Add/Edit Catalog Rack Equipment* dialog opens.

**Add/Edit Catalog Rack -- Webpage Dialog**

**Rack 45U**

**General** | Dimensions | Notes

Name: Rack 45U

Functional Type: Rack

Class: ----choice---- **Add**

Description:

Size (U): 45

Power Limit (W): 0 Recommended (W): 0

Arm Side: None Weight (KG): 0

Vendor Name: ----choice---- **Add**

Vendor Part No.:

U Order: ☒ Top to bottom ☐ Bottom to top

**Save As New** **OK** **Cancel** **Reset** **Apply**

Figure 40 - Add/Edit Catalog Rack Equipment dialog

3. Enter the relevant information, specifically the size (U) of the equipment.
4. Assign an Icon. See *Assigning Icons to a Catalog Item* or .
5. Select **OK** or another of the options to proceed.

## Adding Software to the Catalog



Software that is defined in the Catalog can be assigned to any Station in the Catalog.

The Item Type Software has been divided into two Functional Types.

Application

OS

### > To add Software

1. In the Catalog tree right-click on a Software Functional Type i.e. Application or OS.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Software* dialog opens.

Figure 41 - Add/Edit Catalog Software dialog

3. Enter the relevant information.

4. To assign a new icon please see *Assigning Icons to a Catalog Item* or Class.
5. Select **OK** or another of the options to proceed.



## Adding an Adapter to the Catalog

Adapters that are defined in the Catalog can be assigned to any Station in the Catalog. The NIC Adapters enable the Stations to connect to the network.

Adapters have been divided into five Functional Types:

NIC

Modem

KVM

SCSI

Montor

> **To add an Adapter**

1. In the Catalog tree right-click on an Adapter Functional Type.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Adaptor* dialog opens.

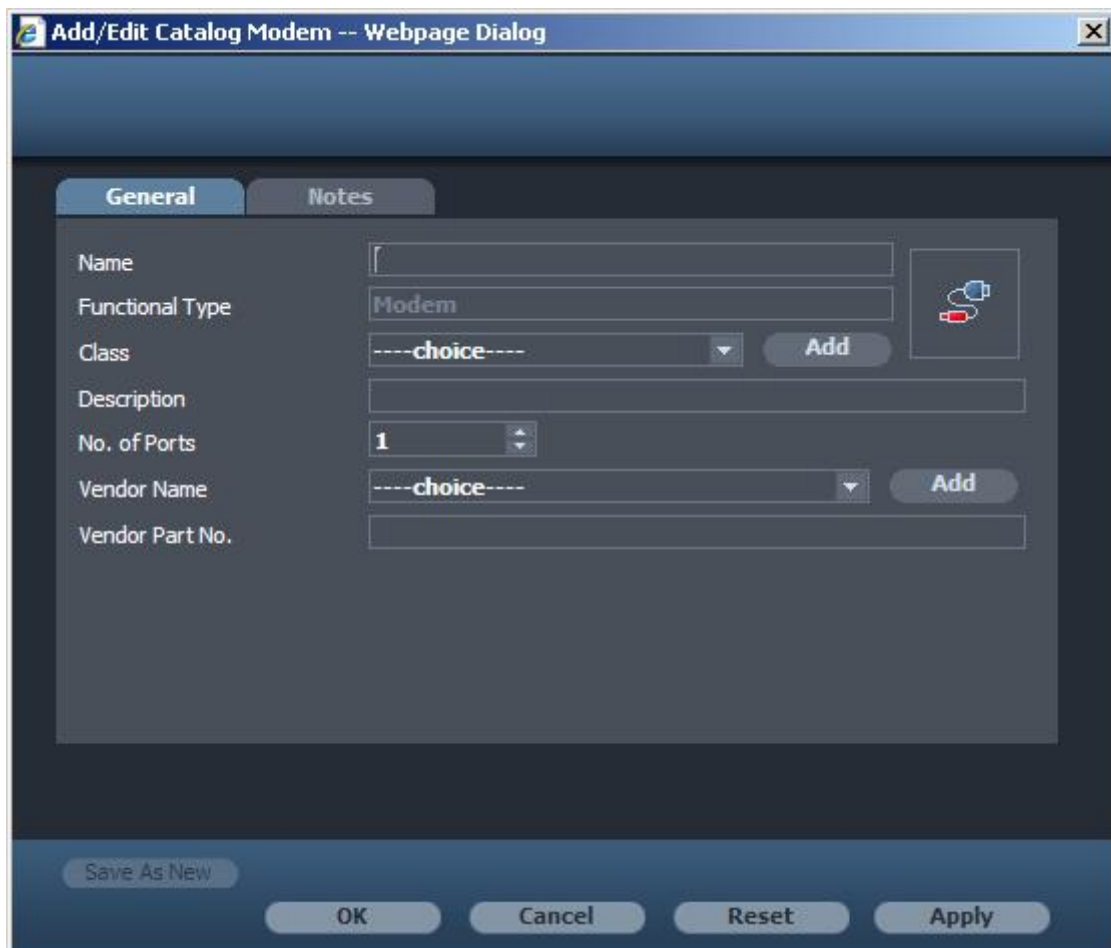


Figure 42 - Add/Edit Catalog Adaptor dialog

3. Enter the relevant information.
4. To assign a new icon please see *Assigning Icons to a Catalog Item or Class*.

5. Select **OK** or another of the options to proceed.

## Adding Terminal Equipment to the Catalog

In order to ensure an end-to-end management system, it is necessary to define all the Terminal Equipment in the enterprise.

Terminal Equipment is divided into five Functional Types. These are:

IP Phone

KVM Device

Printer

Station

Telephone

IP Phones, Printers and Stations are all linked via outlets to the switches. These will automatically be traced by the P-LET Module if full links have been defined. It is only necessary to define these elements individually if your system is not using the The Discovery Module - see **Error! Reference source not found.**

KVM Devices are connected to Stations and need to be listed individually if a record of them is required.

Telephones are connected to PBXs, which currently cannot be accessed by P-LET and therefore need to be listed individually if a record of them is required.

## Adding an IP Phone to the Catalog

IP Phones are full-feature telephones that provide voice communication over an IP (Internet Protocol) network. It is only necessary to define the IP Phone in the catalog if P-LET is not used.

### > To add an IP Phone

1. In the Catalog tree right-click on IP Phone.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog* IP-Phone dialog opens.

**Add/Edit Catalog IP Phone -- Webpage Dialog**

**General** | Adapters | Software | Notes

Name:

Functional Type:

Class:

Description:

CPU:  RAM:

Power (W):

Monitor:

No. of Slots:  Size (U):

Type:  Vendor Part No.:

Vendor Name:

Image Name:

*Figure 43 - Add/Edit Catalog IP-Phone dialog*

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Adapters tab (Optional).

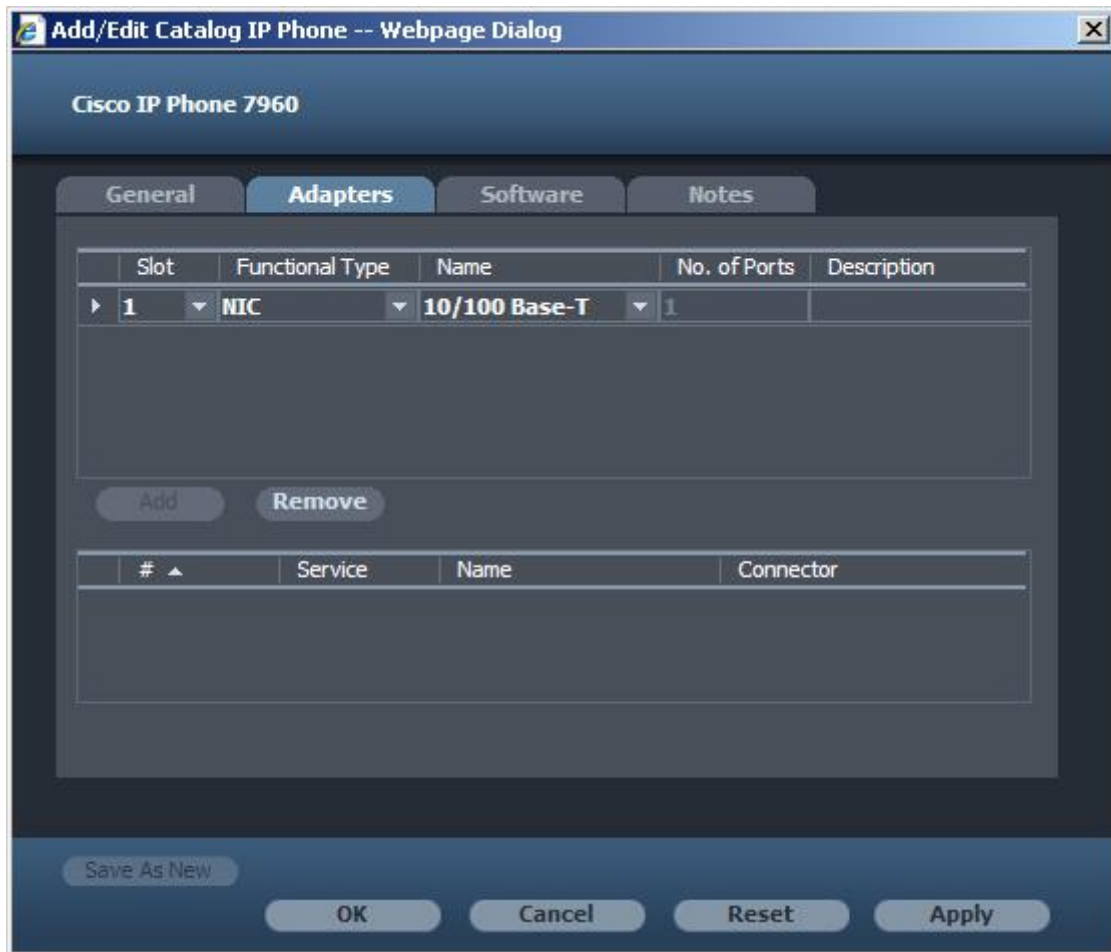






Figure 44 - Add/Edit Catalog IP-Phone Adapters tab

6. Click on the Add button to insert the adapter information.
7. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
8. Type in a description if required.
9. To remove information from this slot, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
10. Click on the Software tab (Optional)
11. Click on the Add button to insert the software.
12. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
13. To remove information from this slot, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
14. Select **OK** or another of the options to proceed.

## Adding a KVM Device to the Catalog

A KVM device allows you to connect between a station and a monitor, even if the station and the monitor are in different locations.

> **To add a KVM device**

1. In the Catalog tree, under Terminal Equipment, right-click a KVM device.
2. Click Add Item from the right-click menu. The *Add/Edit Catalog KVM Device* dialog opens.

The screenshot shows a web-based dialog box titled "Add/Edit Catalog KVM Device -- Webpage Dialog". It features a tabbed interface with "General", "Adapters", "Software", and "Notes" tabs. The "General" tab is selected, displaying various input fields for configuring a KVM device. Fields include "Name", "Functional Type" (pre-filled with "KVM Device"), "Class" (a dropdown menu showing "---choice---"), "Description", "CPU", "RAM", "Weight (KG)" (set to "0"), "Power (W)" (set to "0"), "Arm Side" (set to "None"), "Monitor", "No. of Slots" (set to "1"), "Size (U)" (set to "1"), "Type" (set to "Stand Alone"), "Vendor Part No.", "Vendor Name" (a dropdown menu showing "---choice---"), and "Image Name" (set to "Default KVM Device"). There are "Add" buttons next to the "Class" and "Vendor Name" dropdowns. At the bottom of the dialog, there are buttons for "Save As New", "OK", "Cancel", "Reset", and "Apply".

Figure 45 - Add/Edit Catalog KVM Device dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click the Adapters tab (optional).

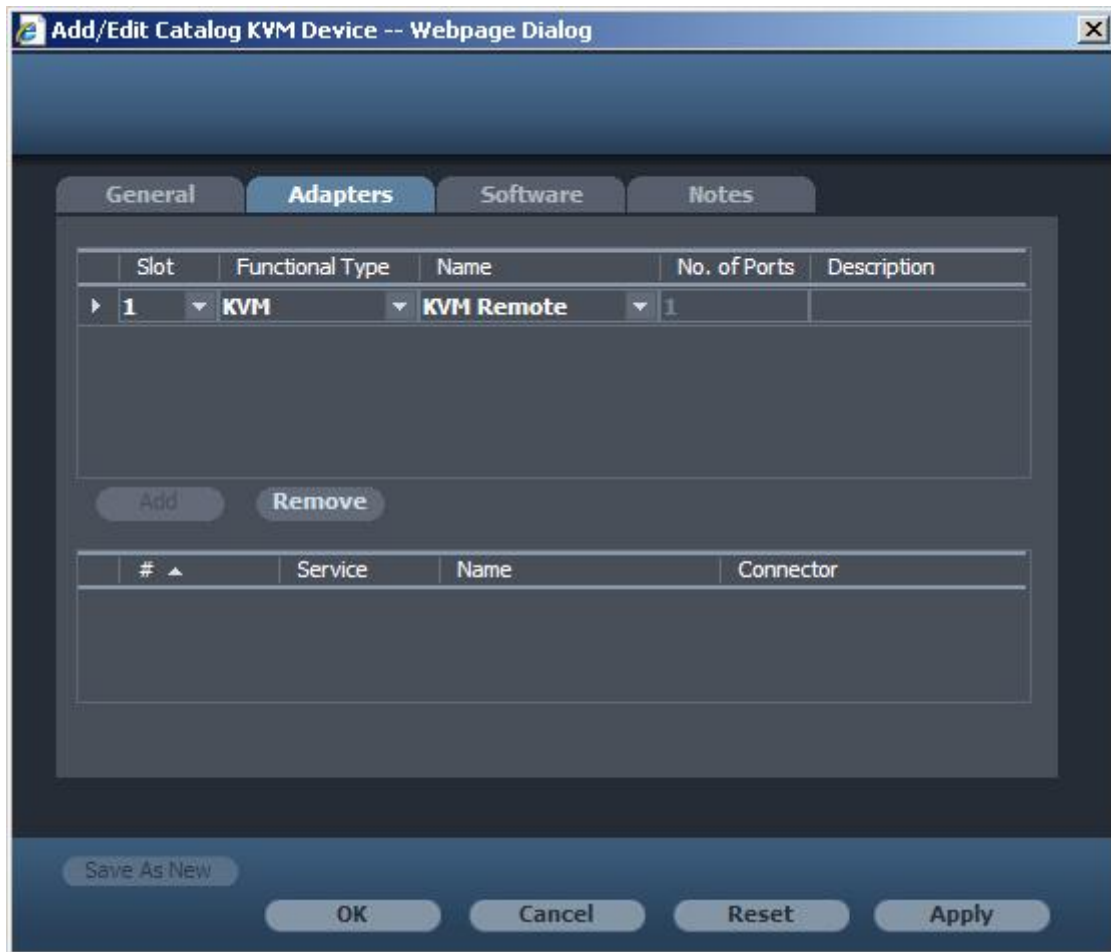





Figure 46 - Add/Edit Catalog KVM Device Adapters Tab

6. Click on the Add button to insert the adapter information.
7. Select a KVM adapter in the Functional Type window by clicking on the  button.
8. Select one of the options available in the Name window by clicking on the  button.
9. Type in a description if required.
10. To remove information from this slot, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
11. Click on the Software tab (Optional).
12. Click on the Add button to insert the software.
13. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
14. To remove information from this slot, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
15. Select **OK** or another of the options to proceed.

## Adding a Printer to the Catalog

Printers that are part of the network need to be defined. If the printer has an IP address then it will be automatically detected by the P-LET. It is only necessary to define the printer in the catalog if P-LET is not installed.

> **To add a Printer**

1. In the Catalog tree right-click on Printer.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Printer* dialog opens.

**Add/Edit Catalog Printer -- Webpage Dialog**

**Laser Printer**

**General** | Adapters | Software | Notes

Name: Laser Printer

Functional Type: Printer

Class: ----choice---- **Add**

Description:

CPU: RAM: 256 MB

Power (W): 0

Arm Side: None

No. of Slots: 1

Type: Stand Alone

Vendor Name: ----choice---- **Add**

Image Name: Default Printer

**Save As New** | **OK** | **Cancel** | **Reset** | **Apply**

Figure 47 - Add/Edit Catalog Printer dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Adapters tab (Optional).



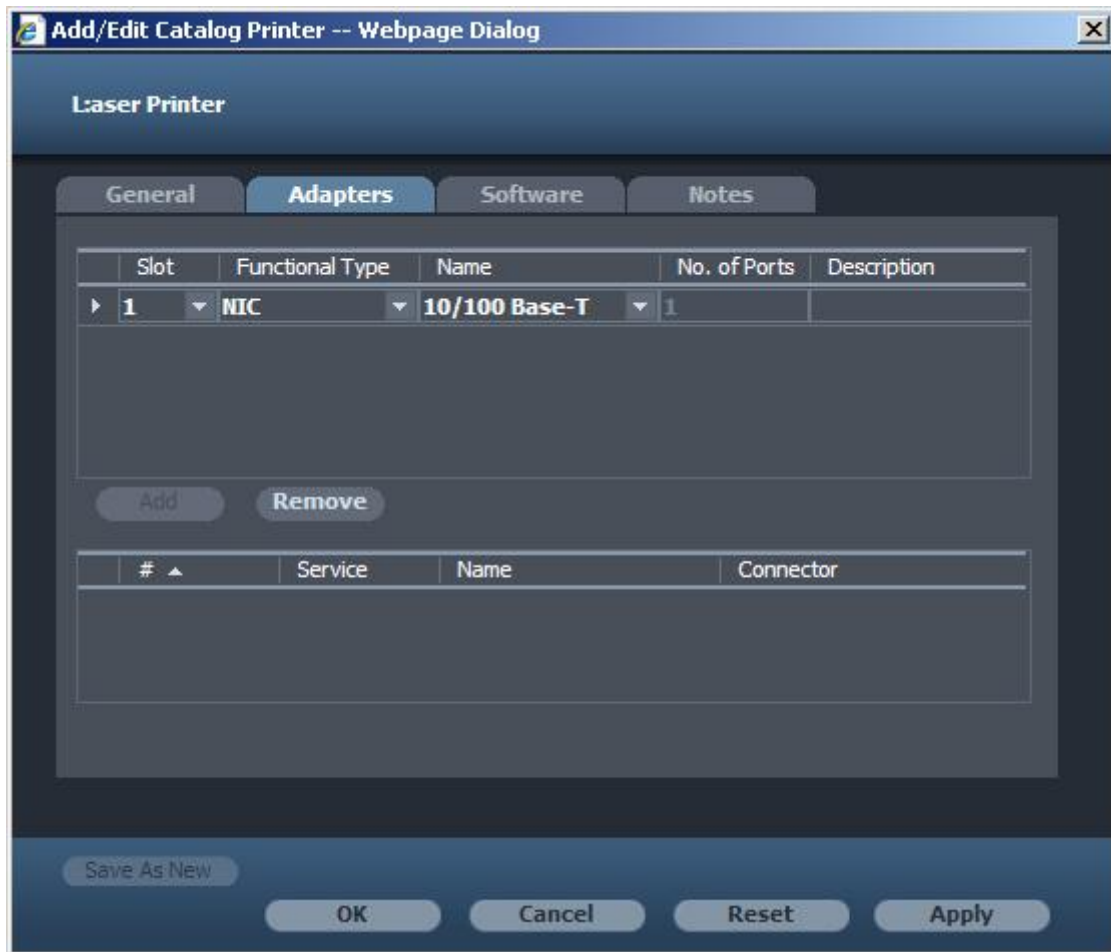






Figure 48 - Add/Edit Catalog Printer Adapters Tab

6. Click on the Add button to insert the adapter information. (Optional)
7. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
8. Type in a description if required.
9. To remove information from this slot, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
10. Click on the Software tab. (Optional).
11. Click on the Add button to insert the software installed on the Printer.
12. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
13. To remove information from this slot, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
14. Type in a description if required.
15. Select **OK** or another of the options to proceed.

## Adding a Station to the Catalog

A Station refers to any computer or other desktop Equipment on the network used as a workstation.

When PV4E runs the P-LET Module, all Stations in the network are automatically located. The located Stations are included in the database.

**Note:**

*If you are using P-LET there is no need to define a Station in the Catalog, as it is automatically discovered by P-LET.*

**Tip:**

*When selecting Adapters and Software for a Station, make sure the relevant items have already been added to the Catalog. If not, they will not appear on their respective lists for selection.*

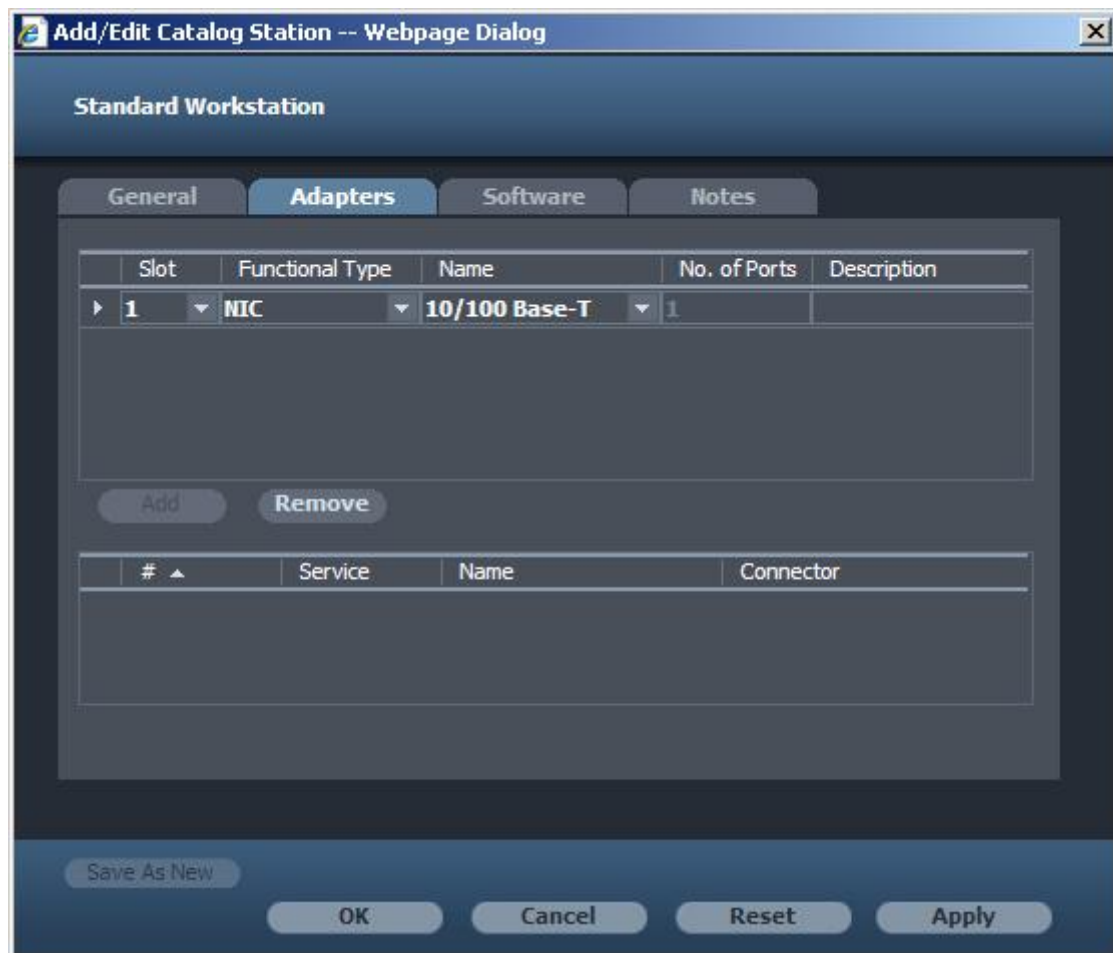
> **To add a Station**

1. In the Catalog tree, under Terminal Equipment, right-click **Station**.
2. Click Add Item in the pull down menu. The *Add/Edit Catalog Station* dialog opens.

Figure 49 - Add/Edit Catalog Station dialog

3. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.

- Click on the Adapters tab (Optional).



*Figure 50 - Add/Edit Catalog Station Adapters Tab*

- Click on the Add button to insert the adapter information.
- Select one of the options available in the Functional Type and Name windows by clicking on the ▾ button.
- Type in a description if required.
- To remove information from this slot, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
- Click on the Software tab (Optional).

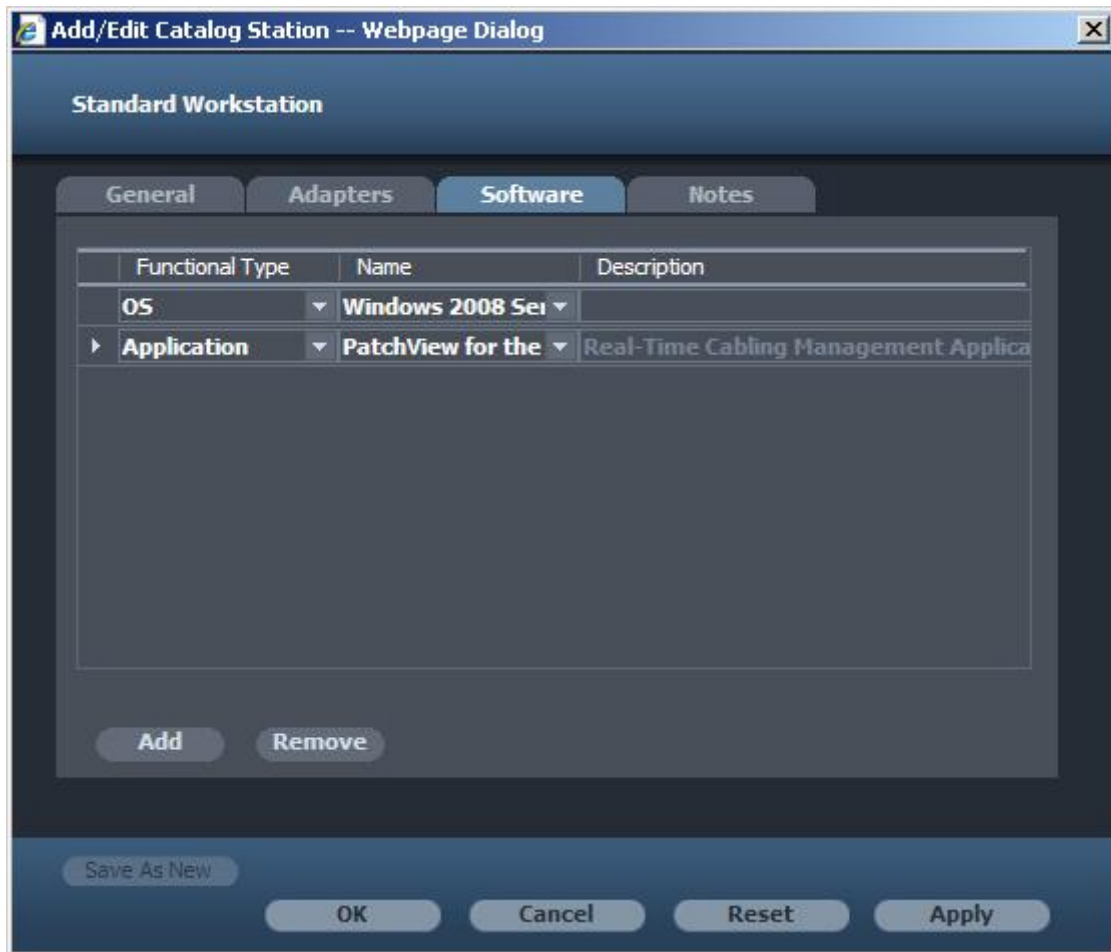




Figure 51 - Add/Edit Catalog Station Software Tab

10. Click on the Add button to insert the software installed on the Station.
11. Select one of the options available in the Functional Type and Name windows by clicking on the  button.
12. Type in a description if required.
13. To remove information from this slot, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
14. Type in a description if required.
15. Select **OK** or another of the options to proceed.

## Adding a Telephone to the Catalog

### > To add a Telephone

1. In the Catalog tree, under Terminal Equipment, right-click **Telephone**.
2. Click Add Item in the pull down menu.
3. The *Add/Edit Catalog Telephone* dialog opens.

**Add/Edit Catalog Telephone -- Webpage Dialog**

**EASA-PHONE**

**General** | Ports | Notes

Name: EASA-PHONE

Functional Type: Telephone

Class: Default Telephone [Add]

Description:

Vendor Name: ----choice---- [Add]

Vendor Part No.: Tel543

Image Name: Default Phone [...]

[Save As New] [OK] [Cancel] [Reset] [Apply]

*Figure 52 - Add/Edit Catalog Telephone dialog*

4. Enter the relevant information.
5. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
6. Click on the Ports tab to insert the required information.

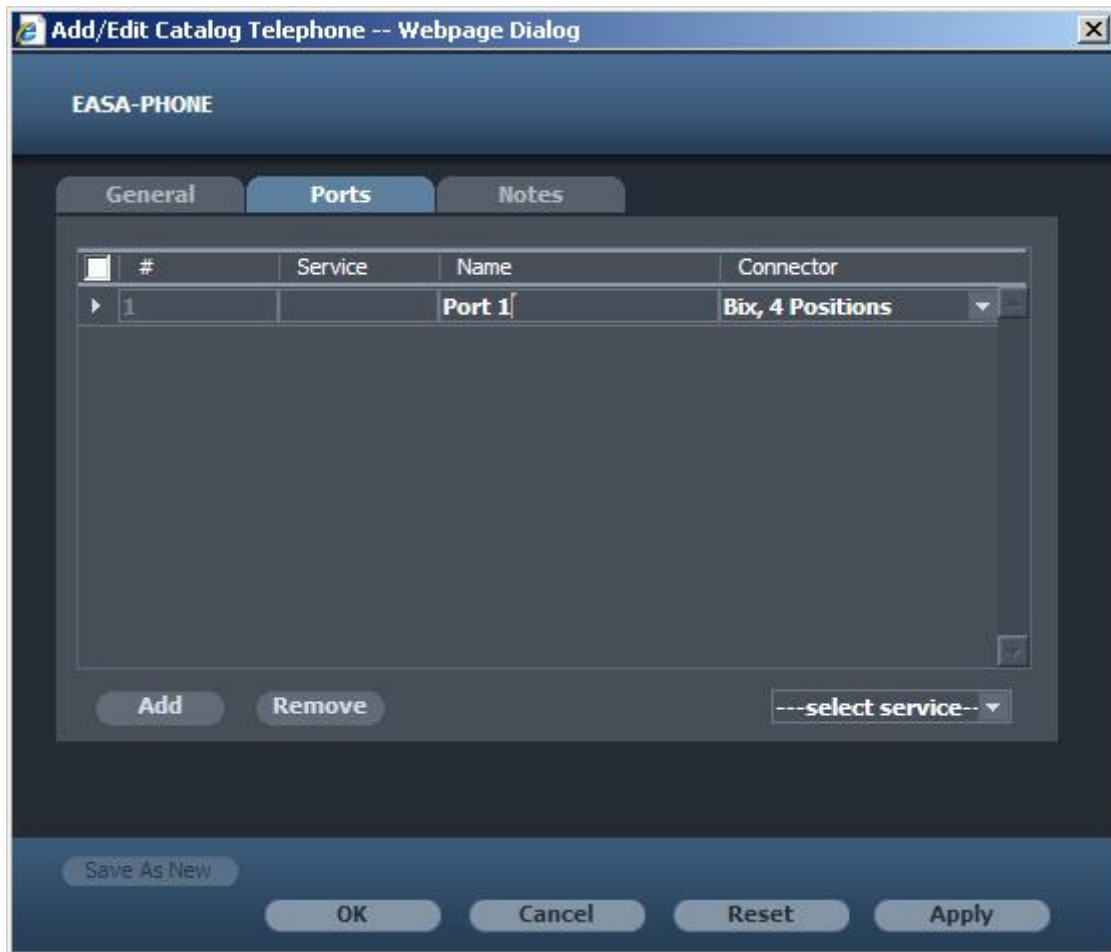


Figure 53 - Add/Edit Catalog Telephone Ports Tab

7. Type in the name and select one of the options available in the Connector window by clicking on the ▾ button.
8. Click on the Add button to insert more ports if required.
9. To remove a port, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
10. Select **OK** or another of the options to proceed.

## Adding Network Equipment to the Catalog

In order to ensure an end-to-end management system, it is necessary to define all the Network Equipment in the enterprise.

Network Equipment has been divided into 4 Functional Items. These are:

Switches

PBXs

Routers

Hubs

Devices have been predefined by the PV4E Version 6.0 system in the Switches Functional Type. These devices are most commonly used by PV4E and it is therefore unnecessary to add further devices.

## Adding Switches to the Catalog

A comprehensive list of switches has been included in the database. All these switches are compatible with the PV4E system and can be detected by the P-LET, using the Switch's IP address. In addition, when detecting a supported switch through the Maintenance tab, it will automatically create the relevant chassis and modules in the Catalog.

For unmanaged switches (e.g. no SNMP supported), the switch may be manually defined in the catalog.

Switches may be comprised of a chassis and modules, or as a standalone device.

Additional switches can be added to the database.

### > To add Switches to the Catalog

1. In the Catalog tree, under Network Equipment, right-click on either the Functional Type – Switch – or one of the Classes defined for Switches.
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog Switch* dialog opens.

Figure 54 - Add/Edit Catalog Switch dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.

- Click on the Ports tab to insert the required information.

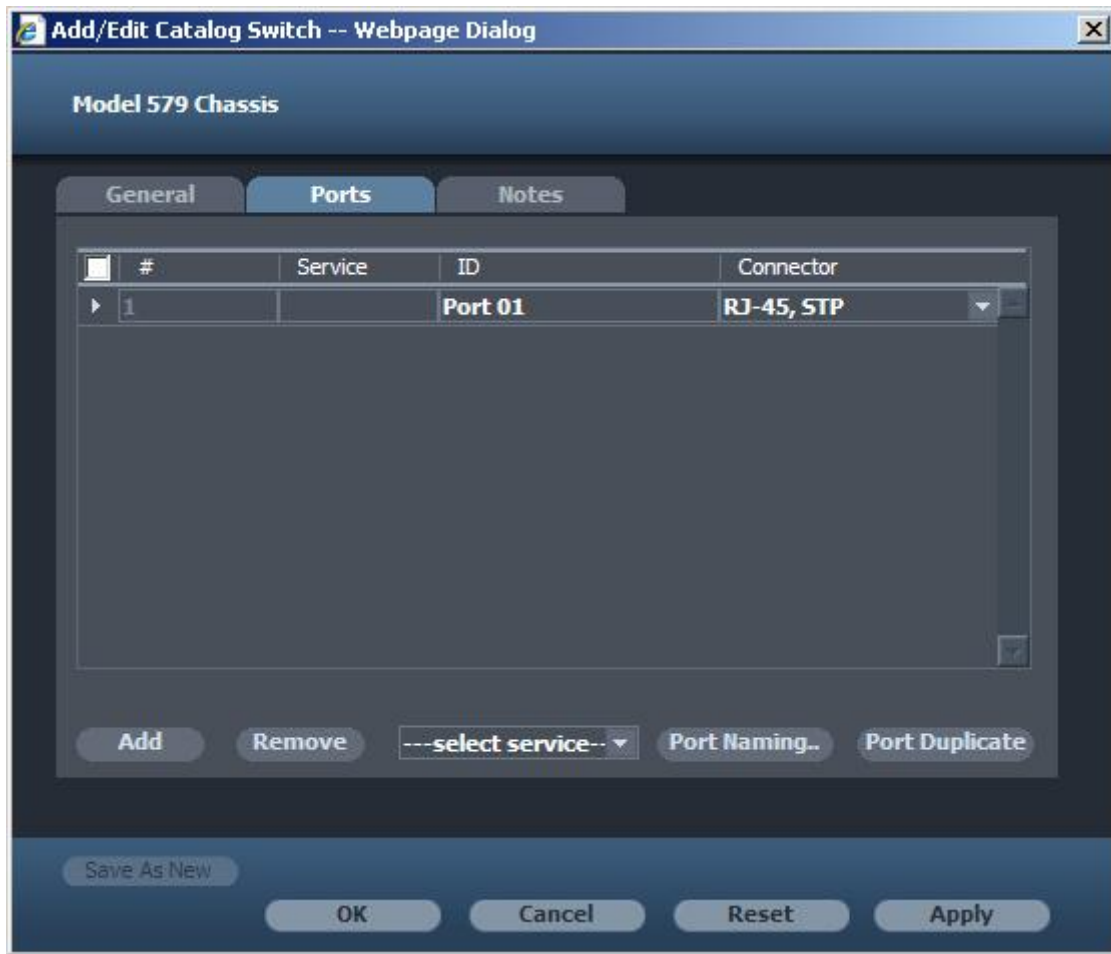


Figure 55 - Add/Edit Catalog Switch Ports Tab

- Type in the name and select one of the options available in the Connector window by clicking on the button.
- Click on the Add button to insert more ports if required.
- To remove a port, click on the relevant line of information. The indicator moves to the active line. Click the Remove button.
- Select **OK** or another of the options to proceed.

## Adding a PBX to the Catalog

PV4E contains the PBX module that allows users to map PBX port information with the associated telephone devices.

When importing data from the existing PBX, there may be additional fields in the PBX file dump that you may wish to import into PV4E. While PV4E already contains a number of standard parameters, you may wish to add additional parameters as required.

If you are not licensed to use the PBX module, you can still gain basic connectivity information as an offline device.



> **To add a PBX**

1. In the Catalog tree, under Network Equipment, right-click on **PBX**.
2. Click Add Item in the pull down menu.
3. The *Add/Edit Catalog PBX* dialog opens.

Figure 56 - Add/Edit Catalog PBX dialog

4. Enter the relevant information.
5. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
6. Click on the Ports tab to insert the Ports for the Switch.  
The Ports tab opens showing the Ports information.

**Add/Edit Catalog Router -- Webpage Dialog**

**GTS Model 314**

**General** | Ports | Notes

Name:

Functional Type:

Class:

Description:

Type: ☐ Stand Alone ☐ Module ☒ Chassis

No. of Slots:  Size (U):

Power (W):  P-LET Supported:


Arm Side:  Weight (KG):

Vendor Name:

Vendor Part No.:

Image Name:

*Figure 57 - Add/Edit Catalog PBX Ports Tab*

7. Type in the port ID, select the service type (POTS, ISDN or Other) and select one of the options available in the Connector window by clicking on the  button.
8. Click on the Add button to insert more ports if required.
9. To remove a port, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
10. Click on the Additional Fields tab to allow the importing of additional fields for the selected PBX.

The Additional Fields tab opens showing the required information.

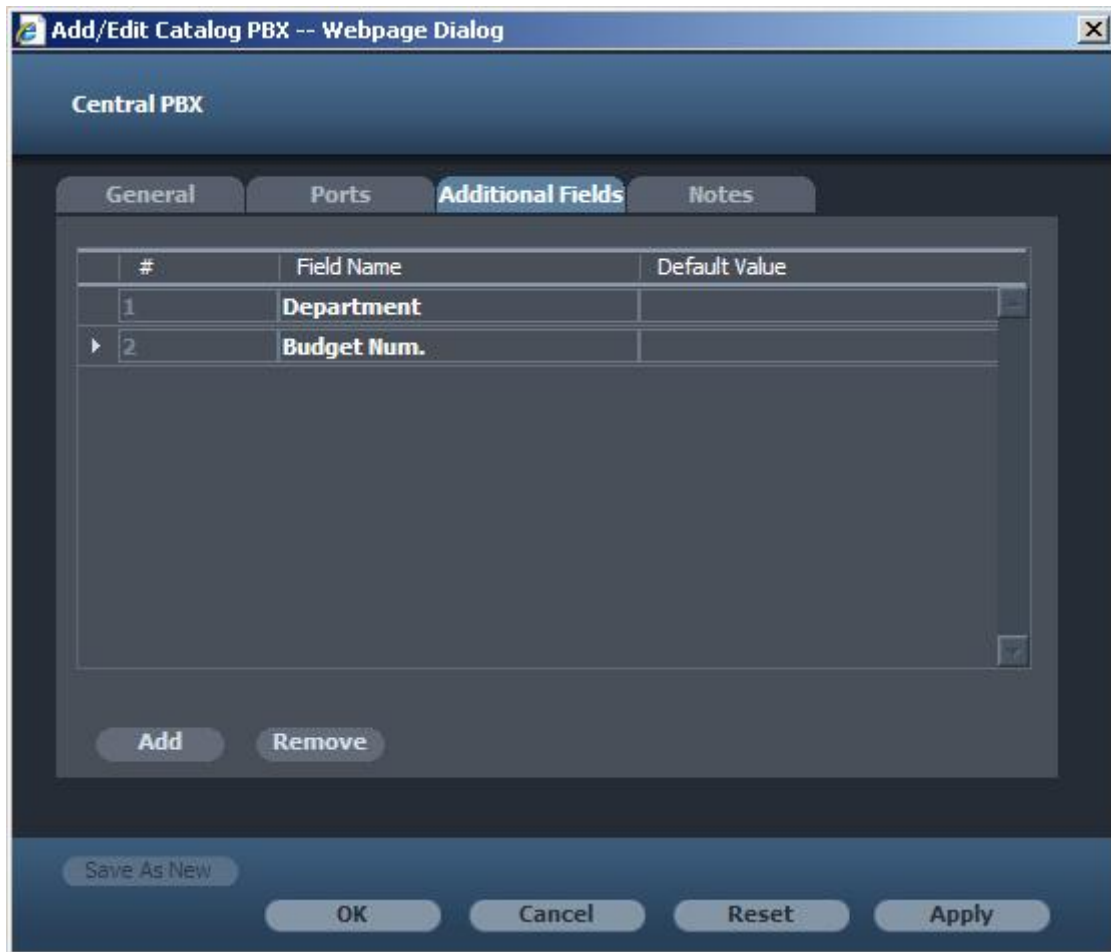


Figure 58 - Add/Edit Catalog PBX Additional Fields Tab

11. Click on the Add button.
12. Enter the Field Name and the Default Value for the field if one exists.  
A default value is entered into the PV4E database when there is no value for a switch port in the PBX dump. The default value is optional. When no value is specified, the value for that switch port is left blank.
13. Click on the Add button to insert more ports if required.
14. To remove a port, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
15. Select **OK** or another of the options to proceed.

## Adding a Router to the Catalog



A router is located at any gateway (where one network meets another), including each Internet point-of-presence. A router is often included as part of a network switch. Routers must be defined in the Catalog, as they are not automatically defined by P-LET.

### > To add a Router to the Catalog

1. In the Catalog tree, under Network Equipment, right-click on **Router**
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog Router* dialog opens.

**Add/Edit Catalog Router -- Webpage Dialog**

**GTS Model 314**

**General** | Ports | Notes

Name:

Functional Type:

Class:

Description:

Type: ☐ Stand Alone ☐ Module ☒ Chassis

No. of Slots:  Size (U):

Power (W):  P-LET Supported:

Arm Side:  Weight (KG):

Vendor Name:

Vendor Part No.:

Image Name:

Figure 59 - Add/Edit Catalog Router dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Ports tab to insert the Ports for the Router

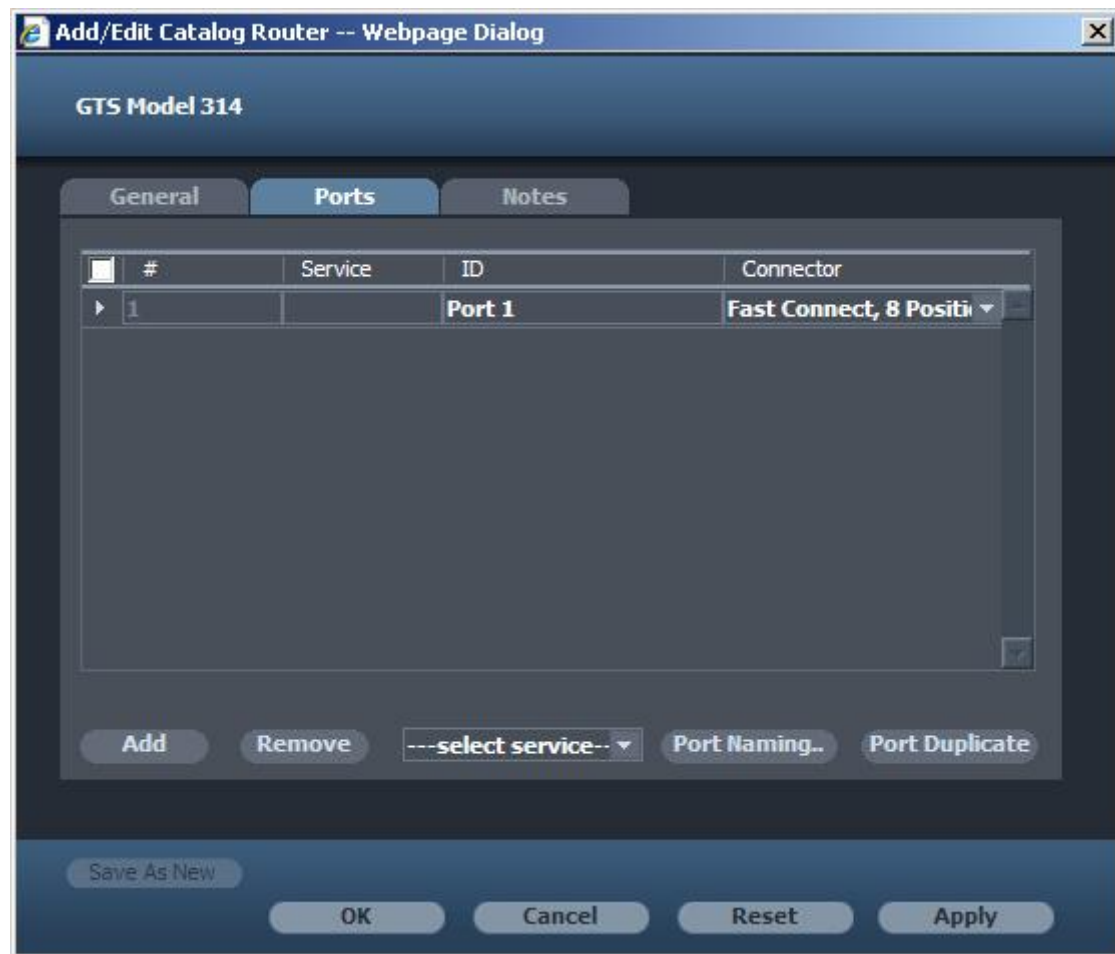




Figure 60 - Add/Edit Catalog Router Ports tab

6. Type in the name and select one of the options available in the Connector window by clicking on the  button.
7. Click on the Add button to insert more ports if required.
8. To remove a port, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
9. Select **OK** or another of the options to proceed.

## Adding a Hub to the Catalog



### > To add a Hub to the Catalog

1. In the Catalog tree, under Network Equipment, right-click on **Hub**.
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog Hub* dialog opens.

**Add/Edit Catalog Hub -- Webpage Dialog**

**HUB 65**

**General** | Ports | Notes

Name: **HUB 65**

Functional Type: **Hub**

Class: **---choice---** **Add**

Description: **HUB UTP**

Type: ☒ **Stand Alone** ☐ Module ☐ Chassis

Size (U): **1**

Power (W): **0** P-LET Supported: **No**

Arm Side: **None** Weight (KG): **0**

Vendor Name: **---choice---** **Add**

Vendor Part No.: **AG-165-6**

Image Name: **Default Equipment** **...**

**Save As New** **OK** **Cancel** **Reset** **Apply**

*Figure 61 - Add/Edit Catalog Hub dialog*

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Ports tab to insert the Ports for the Hub.

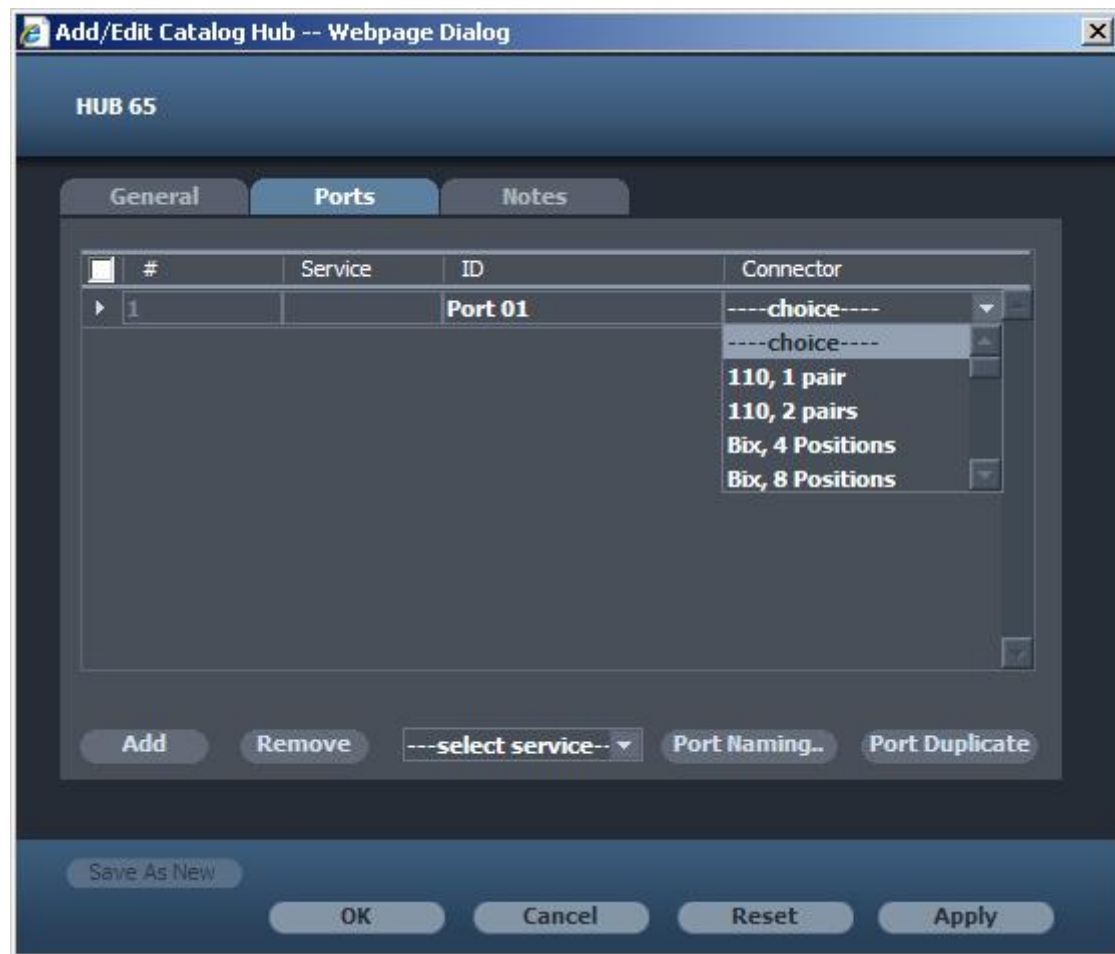




Figure 62 - Add/Edit Catalog Hub Ports tab

6. Type in the name and select one of the options available in the Connector window by clicking on the  button.
7. Click on the Add button to insert more ports if required.
8. To remove a port, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
9. Select **OK** or another of the options to proceed.

## Adding PVMax Equipment to the Catalog

### **Note:**

*As these components are vital to the running of your Enterprise, they are included in the database during the installation process.*

The PVMax Equipment needed to operate RiT's PatchView System consists of the following components:

Masters

Expanders

Master Expanders

Scanners

Local Scanner

PVMax controller, including

Indicator Controller

Security Controller

Control Pad

### Master



The PVMax Master manages the physical layer network. The Master controls all underlying PVMax Scanners, managing the scanning algorithm. The Master is always the apex of the hierarchy and has the ability to view the entire system.

### Expander



The PVMax Expander is used to expand the capabilities of the Master.

Cascading Expanders from the DOWN LINK Ports of the Master achieves this. Each DOWN LINK Port of a Master is connected to the Level 1 Expander of a site.

### Master Expander



The PVMax Master Expander is a combination of both the PVMax Master and PVMax Expander. It includes all the capabilities and features of the PVMax Master and the PVMax Expander.

### Scanner



The PVMax Scanners are connected to the SMART Patch Panels with Scanner Attachment Cords. The PVMax Scanner monitors all ports on these panels.

### Local Scanner



The PVMax Local Scanner is a stand-alone device that manages the physical layer network. It is connected directly to the network and is able to monitor



up to 144 ports (up to 6 panels). PVMax Local Scanner scans and processes the panels' physical connectivity information, and sends it via the network to the PV4E server.

## PVMax Controllers

### Security Controller



The PVMax Security Controller enables control of various sensors and remote-controlled devices from the PatchView Management Station. Sensors such as temperature, humidity, floods etc., and remote devices such as rack indicators, door locks, door switches, fans, can be physically connected to the PatchView system using the PVMax Security Controller.

### Indicator Controller



The PVMax Indicator Controller is a subset of the PVMax Security Controller and works independently when connected to a PVMax Master, Expander or Master Expander. It is used solely to activate the Rack Indicators.

### Control Pad



The PVMax Control Pad is connected to a PVMax Scanner via the Control Pad Port. Using the Control Pad the technician is guided through the process of connecting and disconnecting the cables to complete the links defined in the system.

## Adding Connecting Hardware to the Catalog

Connecting Hardware refers to such items as communications outlets, patch panels and connectivity modules. These can be either copper or fiber optic.

A comprehensive list of Connecting Hardware has been included in the database and additional items can be added to the Catalog.

### Adding an Outlet to the Catalog



An Outlet is a connecting device in the work area. A comprehensive list of outlets has been included in the database.

Additional Outlets can be added to the database.

#### > To add an Outlet to the Catalog

1. In the Catalog tree right-click on an Outlet.
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog* Outlet dialog opens.

**Add/Edit Catalog Outlet -- Webpage Dialog**

Double 5, 1 Port, STP

**General** | Ports | Notes

Name: Double 5, 1 Port, STP

Functional Type: Outlet

Class: Copper Add

Description: Comm outlet

Vendor Name: ADC Krone Add

Vendor Part No.: K-12344

Save As New OK Cancel Reset Apply

Figure 63 - Add/Edit Catalog Outlet dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Ports tab to define the front and back Ports for the Outlet.

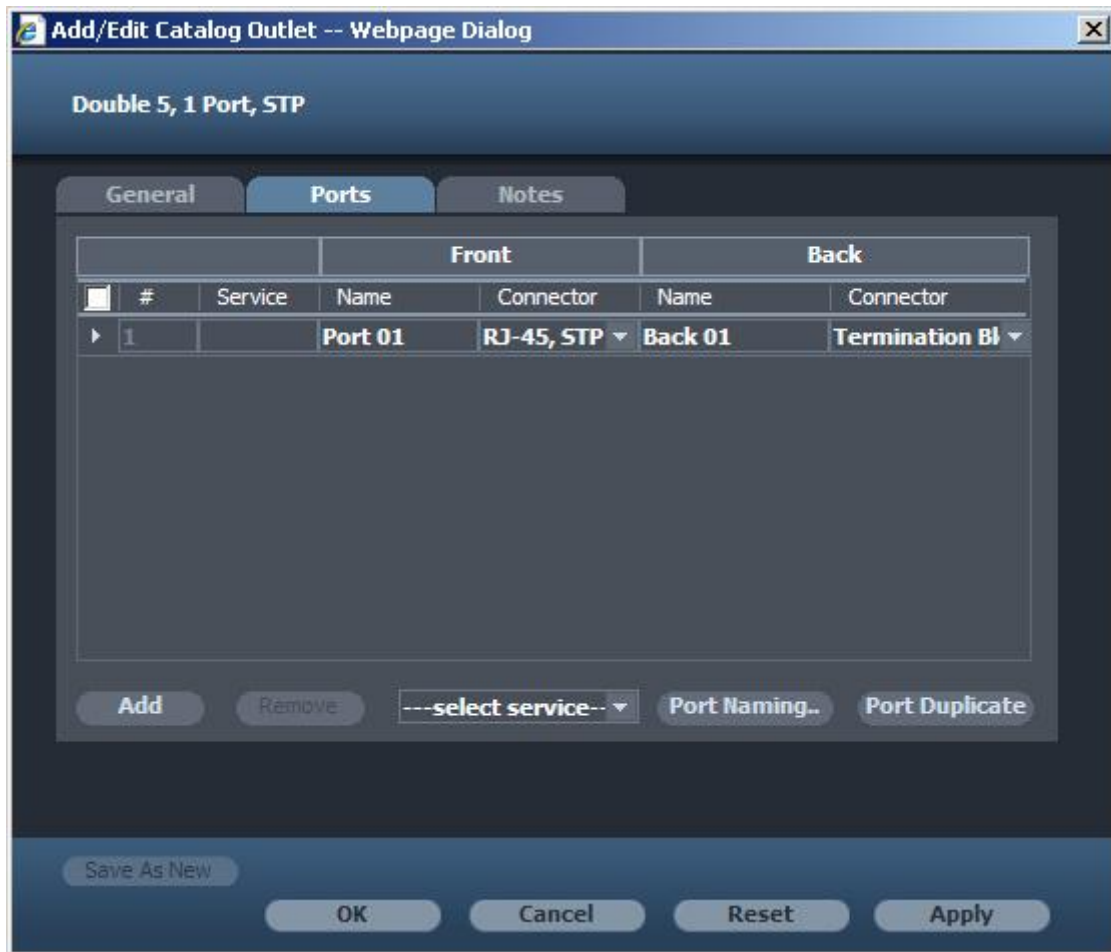



Figure 64 - Add/Edit Catalog Outlet Ports tab

6. Type in the name for both the front and the back ports.
7. Type in the name and select one of the options available in the Connector window by clicking on the  button.
8. Click on the Add button to insert more ports if required.
9. To remove a port, click on the relevant line of information. The ► indicator moves to the active line. Click the Remove button.
10. Select **OK** or another of the options to proceed.

## Adding a Panel to the Catalog



A comprehensive list of panels has been included in the database. All these panels are compatible with the PV4E system.

Additional panels can be added to the database however they might not be PatchView supported.

### > To add a Panel to the Catalog

1. In the Catalog tree right-click on a Panel.
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog Panel* dialog opens.

**Add/Edit Catalog Panel -- Webpage Dialog**

**Keystone -Type 16, STP**

**General** | Ports | Notes

Name: Keystone -Type 16, STP

Functional Type: Panel

Class: Copper Add

Description:

Size (U): 1

PV Supported: No

Vendor Name: ----choice---- Add

Vendor Part No.: R373507X

Image Name: Default Connecting Hardware ...

Save As New OK Cancel Reset Apply

*Figure 65 - Add/Edit Catalog Panel dialog*

3. Enter the relevant information.
4. To assign a new icon please see *Assigning Icons to a Catalog Item*.
5. Click on the Ports tab to define the front and back Ports for the specific hardware device.

**Note:**

*Ports for RiT Connecting Hardware items are included in the database and appear automatically for a selected item.*

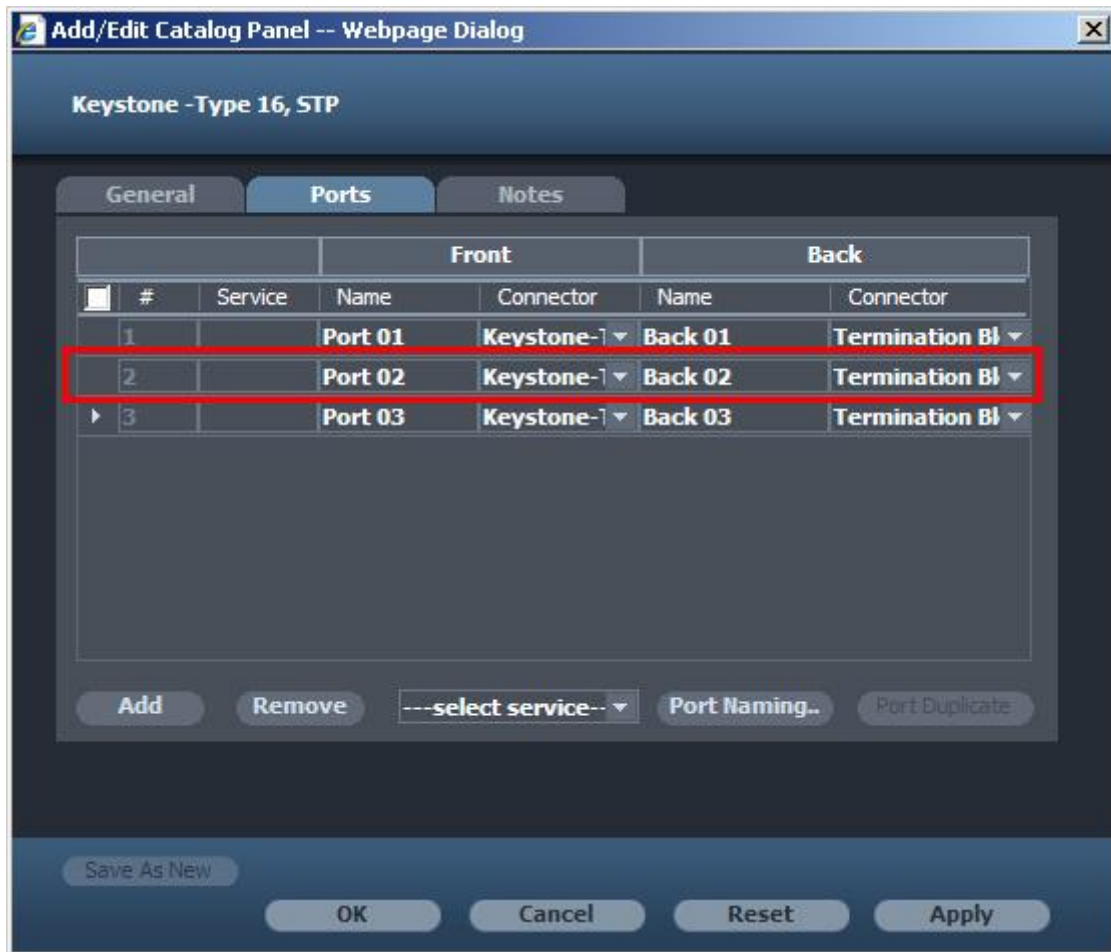




Figure 66 - Add/Edit Catalog Panel Ports tab

6. Type in the name and select one of the options available in the Connector window by clicking on the  button.
7. Click on the Add button to insert more ports if required.
8. To remove a port, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
9. Select **OK** or another of the options to proceed.

## Adding a Panel to the Catalog



Please refer to Chapter 10 – Blade Servers.

## Adding Datacenter Equipment to the Catalog

Datacenter equipment refers to such items as environmental sensors controllers etc.

A basic list of Datacenter Equipment has been included in the database and additional items can be added to the Catalog.

This type currently has single functional type which is Environmental Control.

## Adding an Environmental Control to the Catalog



An Environmental Control is a hub which aggregates information from multiple environmental sensors.

Additional Environmental Controls can be added to the database.

> **To add an Environmental Control to the Catalog**

1. In the Catalog tree right-click on an Environmental control.
2. Click Add Item in the pull down menu.  
The *Add/Edit Catalog Outlet* dialog box opens.

Figure 67 -Add/Edit Catalog Outlet dialog

3. Enter the relevant information.
4. Assign an Icon. See *Assigning Icons to a Catalog Item or Class*.
5. Click on the Ports tab to insert the Ports for the environmental control.

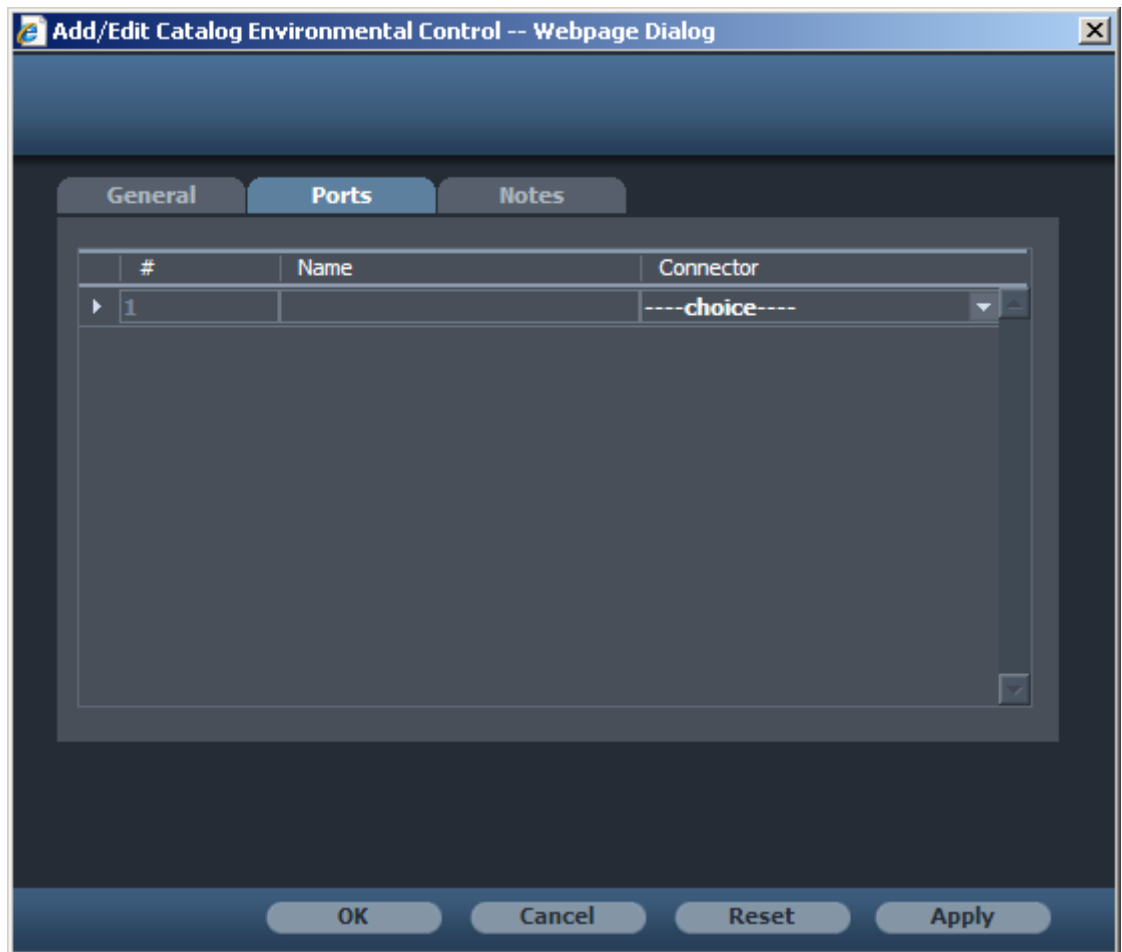




Figure 68 -Add/Edit Catalog Environmental control Ports tab

10. Type in the name and select one of the options available in the Connector window by clicking on the  button.
11. Click on the Add button to insert more ports if required.
12. To remove a port, click on the relevant line of information. The  indicator moves to the active line. Click the Remove button.
13. Select **OK** or another of the options to proceed.

## Using Icons

PV4E assigns each Catalog Item type a default icon in order to facilitate item identification. When you create classes for an Item type, these classes have the assigned icon.

When you add an item to the Catalog, it also inherits the default icon. You can change the default icons for each Item type, class, or Inventory item. These icons cannot be deleted from the database.

PV4E allows you to import additional \*.gif files to use as icons.

## Assigning Icons to a Catalog Item or Class

### > To assign or change an icon

In this example a Module has been added to the Item Type Switches in the catalog. The system has allocated the Switch Icon, which needs to be changed.

1. In the Catalog tree, right click on the selected class or item.
2. Click the Edit function in the pull down menu.  
The *Add/Edit Catalog Switch* dialog opens.

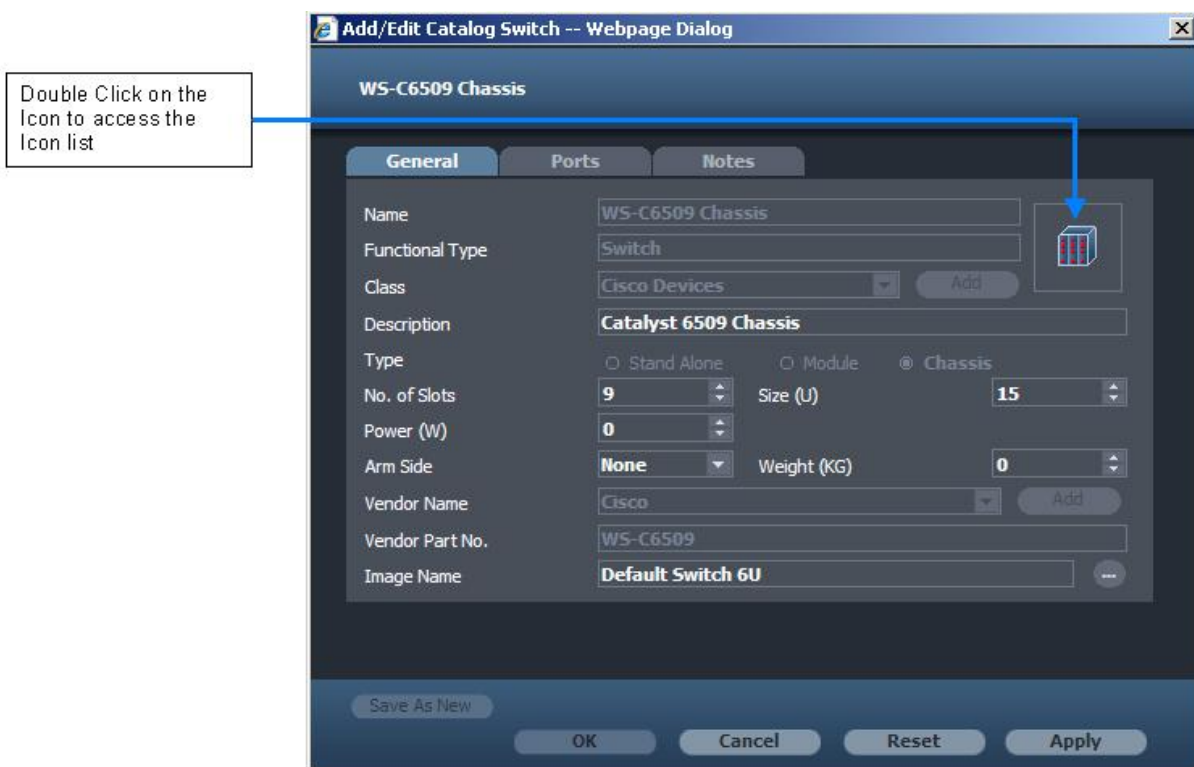


Figure 69 - Add/Edit Catalog Switch dialog

3. Double Click on the icon. The Icon List dialog opens.





Figure 70 - Icon List dialog

4. In the Icon List locate and select the icon you want. The ▶ indicator moves to the selected icon.
5. Click the **OK** button to return to the Add/Edit window.

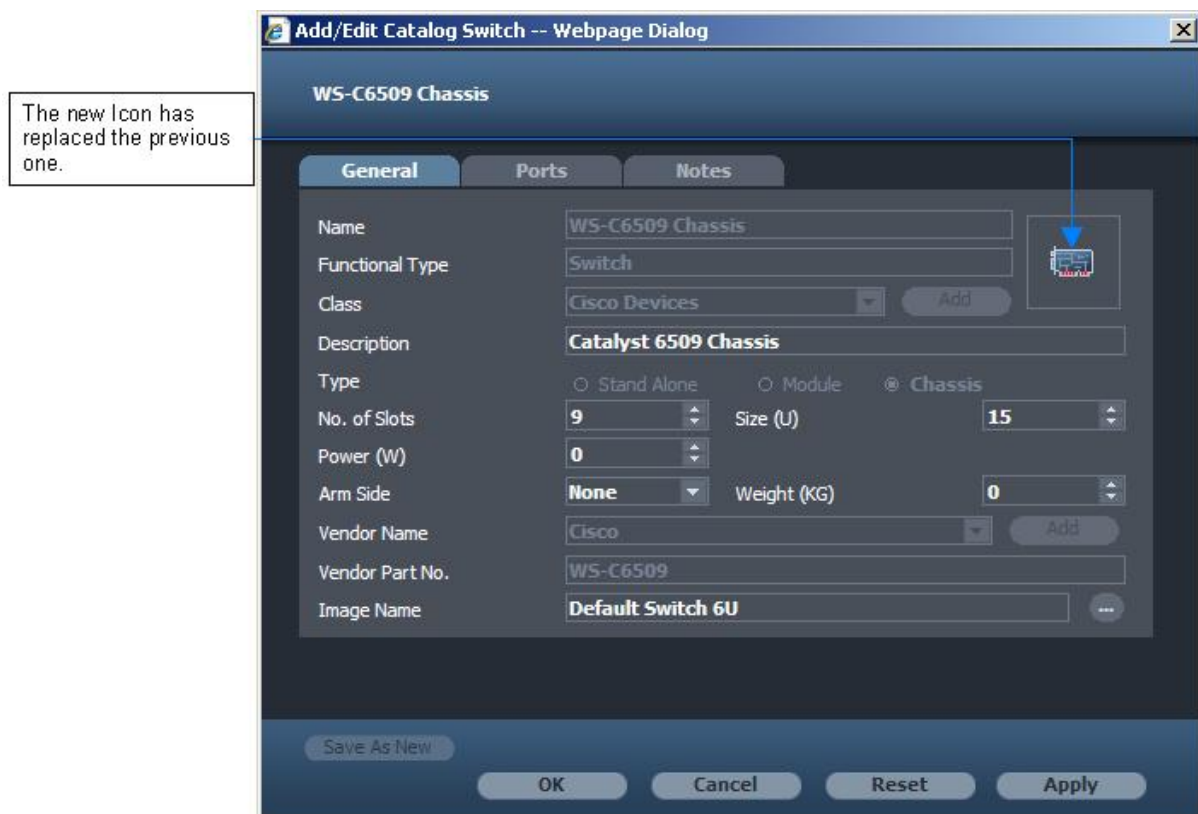


Figure 71 - New Icon Added

- Click the **OK** button to exit this dialog.

## Chapter 5 - Setting Up Projects

### Setting Up Projects - Overview

PV4E is designed specifically to manage your enterprise, which is a complex system of networks. This network is made up of Hardware, Software and Connecting Components. These are defined and stored in the Project database which is divided into three sections:

- Location Tree which represents the hierarchical structure of the physical location of the enterprise and all assets in the locations
- *Topology* Tree that represents the hierarchical structure of the logical order of the Network Equipment in an enterprise.
- Users Tree which represents all the departments, groups and individual users/owners in your Enterprise

The Location, *Topology* and User Trees are found in the Maintenance Module of PV4E.

This section guides the user through the process of defining the locations and assigning Items necessary to set up a project.

In this section you will learn how to define the actual physical location of the building, floors, rooms etc. and how to reference the Items that were defined in the Catalog.

Just as you define the network components in the Catalog, so you define a network of locations. Locations are defined in hierarchical order from the most general to the most specific item and there is no limit to the number of levels. Any location structure that is suitable for your project's needs may be defined.

For example, suppose your company is located in two separate buildings in New York. You occupy two floors in building #1 and three floors in building #2.

You can define the location hierarchy as follows:

- Company Name:
  - City: New York
    - Building #1
      - Floor 1
      - Floor 2
    - Building #2
      - Floor 1
      - Floor 2
      - Floor 3

You can continue defining lower levels for individual rooms. The defined locations appear in the Location tree.

Defining the physical location is the first step in Setting up a Project. This is done in the Location Tree.

Once the physical locations have been defined, Network Items that were defined in the Catalog can now be referenced and assigned to a specific Location in the Location Tree.

The second step in Setting up a Project is to position the Network Items in the *Topology* Tree according to their logical order both in the Communication Room and individual racks.

This section defines the logical hierarchy of the Network Equipment. It defines how the Connecting Hardware is connected to the PatchView and Network Equipment. Different types of sites are defined.

It should be noted that when an item is allocated to a location, this unique item is using the Catalog item as a reference. In this way a multiple of the same network item can be allocated to a specific location/s.

Items and classes can be added, edited or deleted directly from the Location and *Topology* Trees without having to re-enter the Catalog.

Specific Items can be defined and stored in the No Location folder of the Location Tree, until such time as they are allocated to a specific location.

A project can be a campus spanning several buildings or it could span countries. Irrespective of the size of the project each location and sub-location needs to be defined for PV4E to work effectively. You will need to specify each building, floor and rooms on each floor. There are no limits to the number of locations that you can define.

All Users in the system are defined in the User Tree. An option is available to allocate Terminal Equipment to the User when adding the items to Location.

**Tip:**

*A Search facility is available to assist you in finding specific Items, Equipment and Users.*

## Planning the Project

In order to accurately set up a project, certain information is required. As the Location Tree is organized in a logical fashion it is vital to have all relevant information available. The Setting up Projects Chapter is divided into three sections:

- Defining and naming the Locations within the Location tree. In order to complete this section you will need site maps or similar drawings of the layout of buildings and floors.
- Assigning Items that have been defined in the Catalog to their specific location. In order to complete this section you will need Network Information. A comprehensive list follows.
- Defining the *Topology* of the network using the information that has been keyed into the Location Tree. Items can be assigned directly into the *Topology* tree if required.

The following is a list of items and information required:

- Site map
  - A site map of buildings and floors e.g. CAD
  - List of room numbers
  - Number of outlets in each room
  - Communication rooms and their contents - racks, patch-panels and equipment
- Network Information
  - Schematic drawing of the active network topology (switches, routers)
  - Type of Switches
  - IP addresses of Switches
  - Read community name of the Switches
  - Type of Routers
  - IP address of the default gateway / router
  - Read community name of the Routers
  - DNS server parameters
  - WINS server parameters

**Note:**

*Switches and Routers must be SNMP enabled for the P-LET discovery.  
The PV4E server must be included in the Access list for all the P-LET scanned switches and routers.*

- List of connectivity
  - List of connections of patch-panel ports to outlet ports
  - List of connections of patch-panel ports to Switch ports
  - List of connections of telephones to outlet ports
  - List of any other devices that do not have a network interface card and their connectivity to the infrastructure
- Naming conventions
  - The Organization naming conventions for all entities starting with Campus, down to outlet port

**Note:**

*Naming conventions should be as short as possible with the required information.*

- Additional Items
  - Any additional items required by the Organization in the database which are not included in the default settings
- PatchView Information
  - Locations of all PVMax Masters, PVMax Scanners, Expanders, and Master Expanders, detailing floors communication rooms, racks and ladders in the racks  
  
Connectivity of all PVMax scanners to Expanders and all Expanders to Masters

## PV Hardware (Previous Version)

If you have an older version of PV hardware, you will also require:

- Connectivity of all Satellite scanners to Master scanner detailing the Indoor backbone and Local bus connections
- Connectivity of all patch panels to the Master and Satellite Scanners detailing scanner connector numbers.
- IP of all the Master scanners
- Community Name
- Serial number of all the Satellite Scanners

## Location Window

Location is part of the Maintenance Module of PV4E.

The Location screen is divided into three windows. These are:

- Location Tree  
All Locations and Items that have been allocated to a location can be accessed via this tree.
- Items property pane  
Data changes to reflect the information of the item selected on the tree.
- Events log pane  
This view lists all the activities that take place in the Network.

> **To open the Location Window**

1. PV4E's system default opens the Maintenance Module with the Location Tree visible directly after log in.

To open the location tree from another module, select and click Maintenance in the Top Menu Bar.

The Maintenance screen with the Location Tree will open.

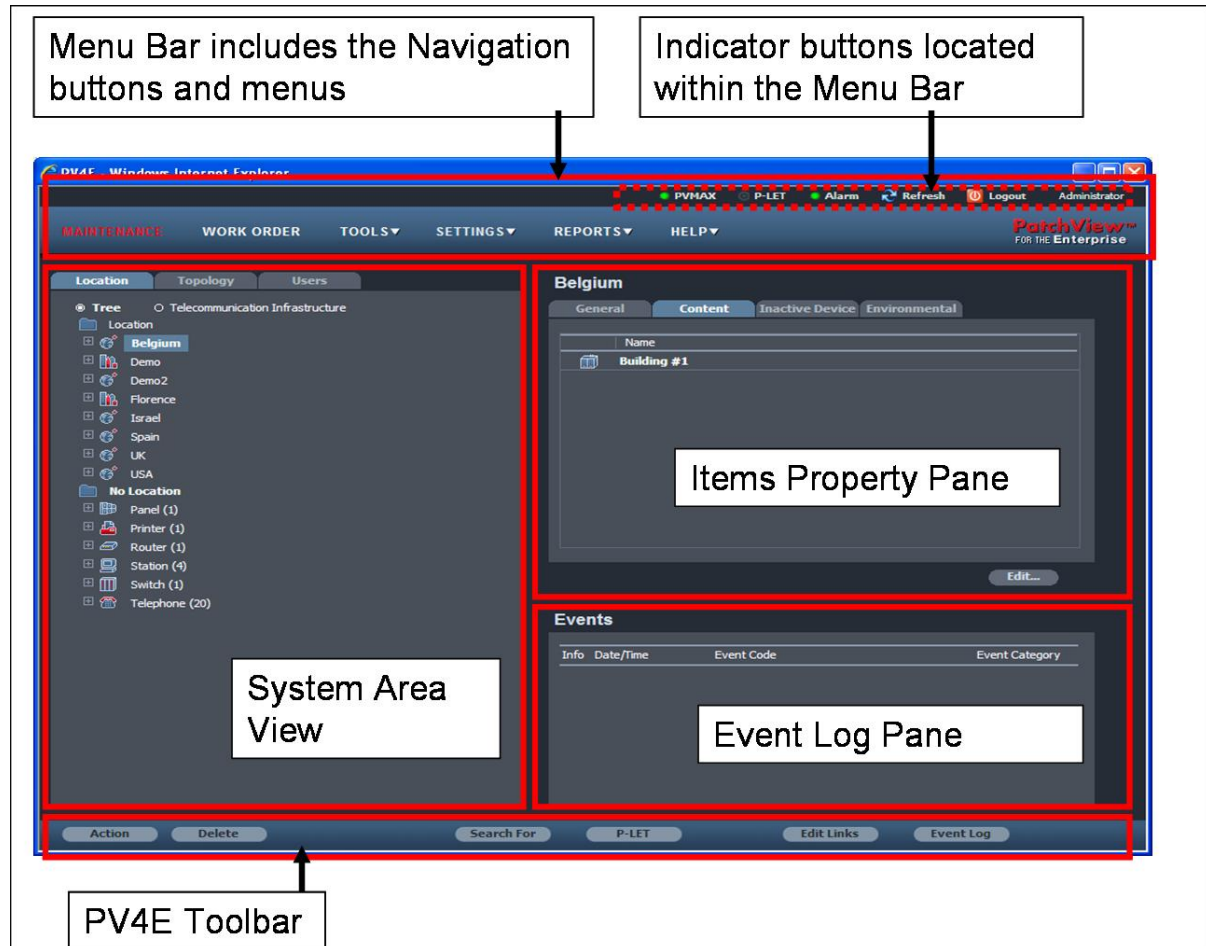


Figure 72 - Maintenance Screen with Location Tree

## Setting up the Location Tree

The Location Tree is divided into two sections/folders. These are:

- **Location**  
Locations (buildings, rooms etc.) are defined. Items are then assigned to a specific physical location.
- **No Location**  
No Location, is used to store a list of Items that are in the database inventory but are not yet assigned to a specific location.

The following section will guide you through the process of setting up the location tree as if it was for a company.

The examples used are based on an example company whose enterprise is located in two buildings, each with five floors. The first floor in building A will be defined in detail. It contains a reception area, a single desk office, a three-desk office, an open plan office with 10 desks and a communication room. A CAD of this floor will be used; however a similar map layout of the buildings and floor will be sufficient.

If the enterprise is a Data Center, managing networks for multiple companies, then it is necessary to define each company name at the first level of the hierarchical tree.

## Naming Locations and Items in the Location Tree

All Locations and Items added or assigned to a specific Location must have a unique name or ID.

### **Note:**

*Items and Classes that have not been defined in the Catalog can be added to the Catalog directly from the Location tree. Every Add/Edit dialog has an **Add** button next to the Class and Catalog Name fields.*

These can either be added or assigned in single or multiple units.

The method of naming single units is the same as that used in Catalog Items. Detailed examples can be found in Adding a First Level Location on page 112.

Locations can be Auto Named or Duplicate Locations or Items can be created. These features are used as follows:

Button	To...
Auto Naming	Automatically names multiple new Locations in a pre-defined sequence.
Duplicate	Duplicates existing Locations, by using the Auto Naming feature.

### **Note:**

*The maximum characters allowed in the path name are 255. This is the accumulative sum of the location and sub location ID names. The individual location ID field allows a maximum of 50 characters.*

## Auto Naming Feature

When you have many similar Locations and Items to add to the Location tree, you can use Auto Naming to automatically create and name the items in a pre-defined sequence. Up to 1000 entries can be defined in a single Auto Naming procedure. The ID is limited to 50 alphanumeric characters. For example, if you have 10 patch panels, you can instruct PatchView for the Enterprise to name each patch panel sequentially as PP1, PP2...PP10.

### **Note:**

*The Auto Naming dialog has three text fields. The limit of 50 alphanumeric characters applies to the total letters/numbers in all three fields.*



## The Auto Naming Window

The Auto Naming window can be accessed either when a Location or Item is added or edited.

> **To open the Auto Naming Window**

1. Open an Add/Edit dialog in the Location Tree or *Topology* Tree.

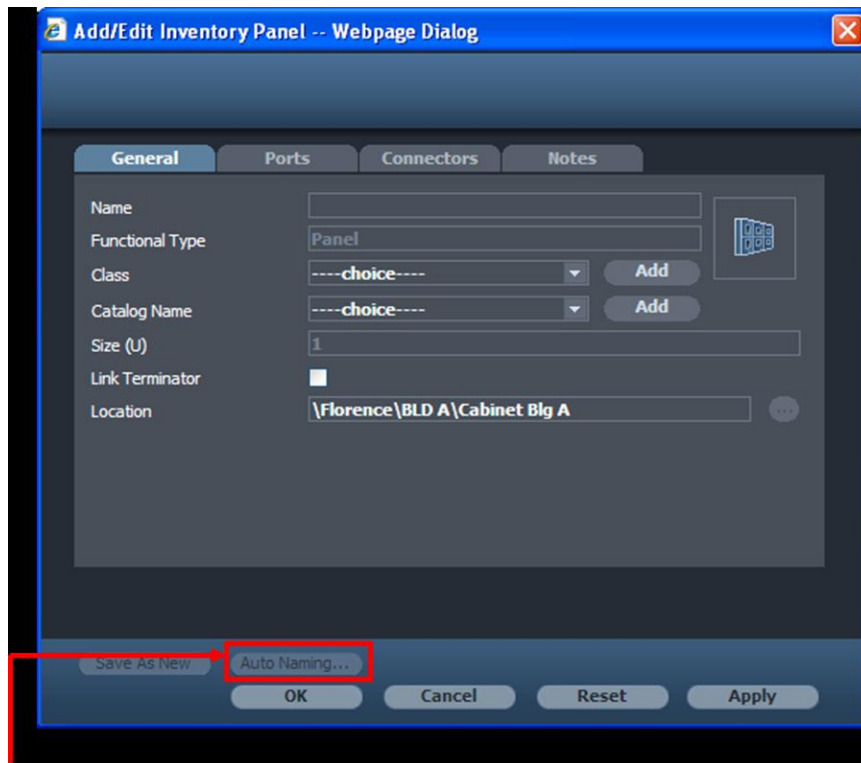


Figure 73 - Auto Naming Button on Panel Window

2. Click the *Auto Naming* button. The *Auto Naming* dialog will open.

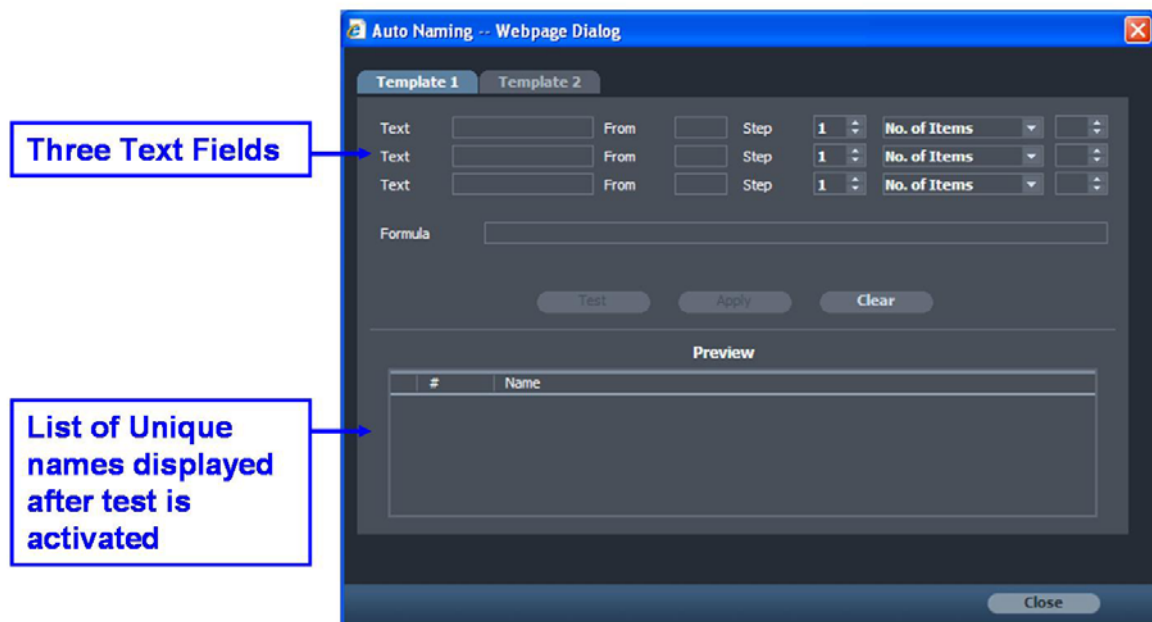


Figure 74 - Auto Naming dialog

The following example is based on Auto Naming 64 panels connected to one PVMax Scanner.

In the first **Text** field type in the PVMax Scanner.


**Tip:**

*After typing the PVMax Scanner, press the spacebar once. This inserts a space between the word S Scanner and the number in the final stage of Auto Naming e.g. S Scanner 01.*

In the **From** field type in the number of the PVMax, which is 01.


In the **Step** field leave the default increment as 1 or change to the desired increment using the up and down  buttons. In this example it is left as one.

In the **No of items** field type in 1.

There is a second option that can be used. Click on the  button and select 'to' Type in actual label required e.g. 05. (Not applicable in this example.)

In the second **Text** field press the Space Bar as this will leave a space between the last character of the previous text field and the word Panel. Type the word Panel followed by a space.

In the **From** field type in the number of the PVMax, which is 01.

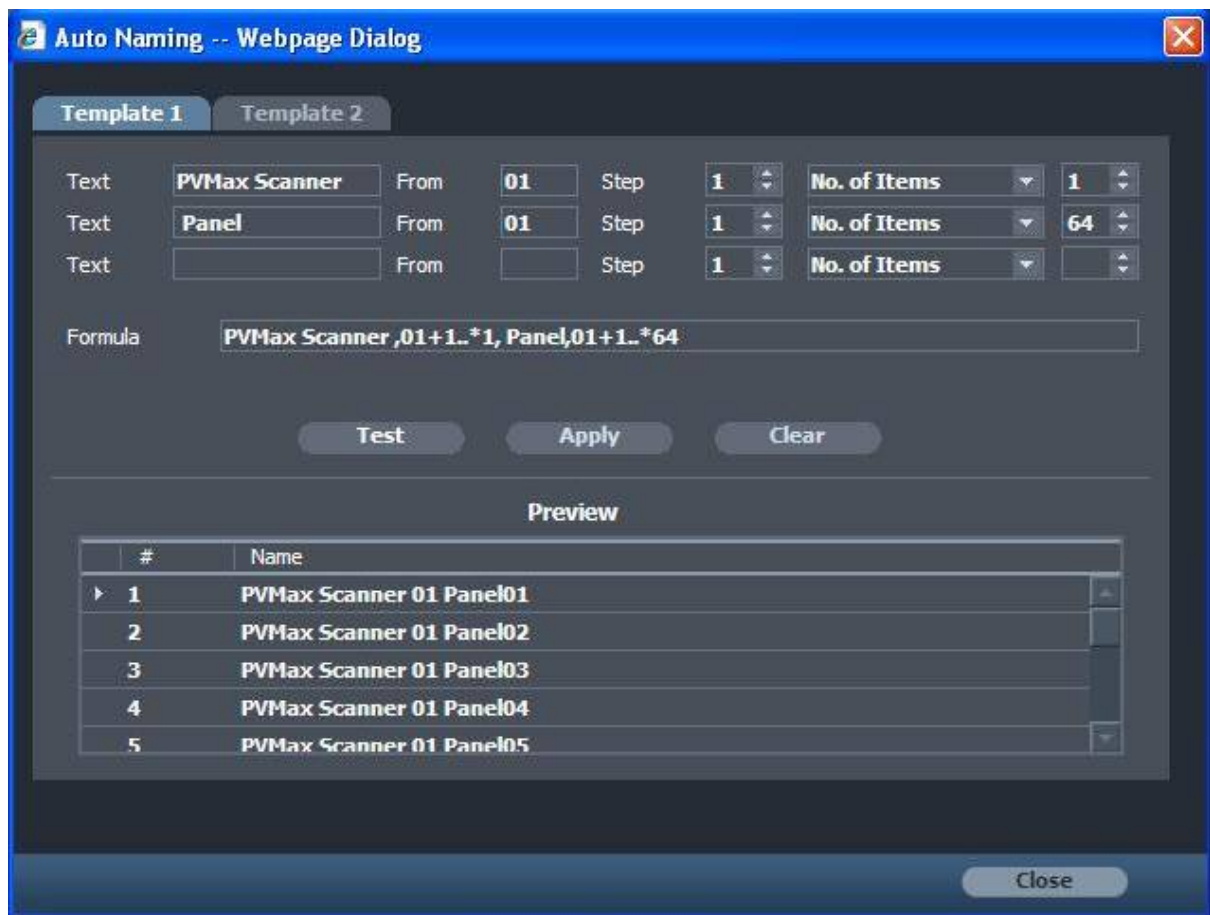
In the **Step** field either leave the default increment as 1 or change to the desired increment using the  buttons. In this example it is left as one.

In the **No of items** field type in 64.

If necessary, fill in the third Text field.

Select and Click the **Test** button.

The system generates a simulation of the Auto Naming that has been formatted.



*Figure 75 - Auto Naming Simulation Window*

Select and click on the **Apply** button to apply the Auto Naming of multiple floors or the **Clear** button if the list is incorrect.

To exit from this dialog without any changes click on the **Close** button.

The Auto Naming dialog will close returning to the Add/Edit location dialog.

Figure 76 - Add/Edit Location dialog

Add the Description (optional).

Select the **OK** button or one of the other options to proceed.

Click on the **Refresh** button after the 'Batch Completed Successfully' message appears in the Event Log.

### Auto Naming Examples

There are two template options available when using the Auto Naming function:

Template 1 - duplicates the entities as is without modifying port names.

Template 2 - duplicates the entities but gives you the option to rename ports.

#### > Template 1 – Basic

Used for creating new items – port names retain the default values.

1. Stand on the location tree, right-click a panel and select **Duplicate** from the context menu:

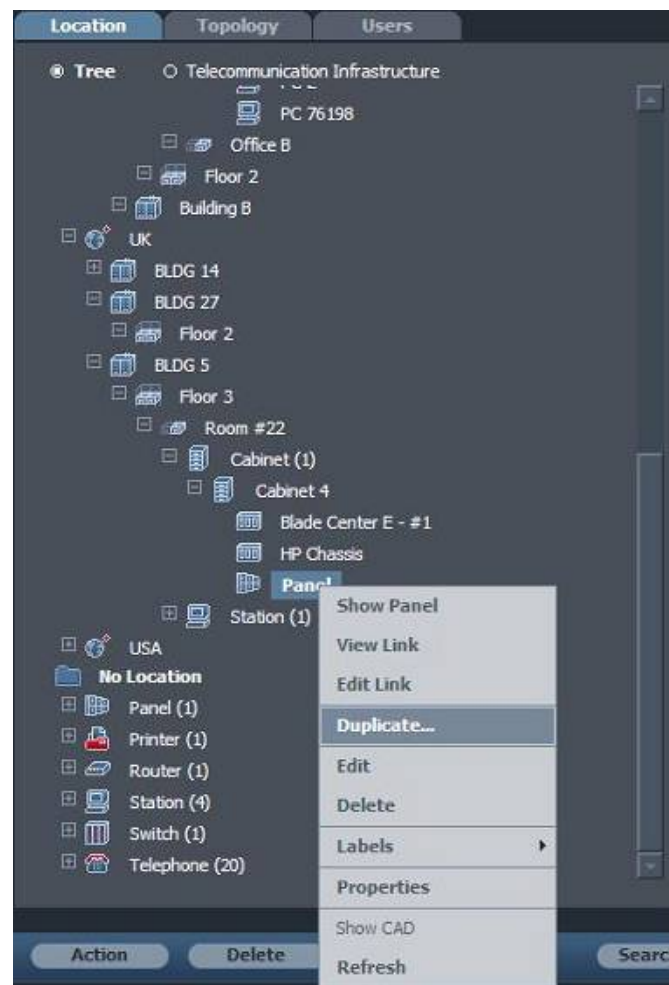


Figure 77 – Auto Naming Location tree dialog

The following *Auto Naming* screen opens at the *Template 1* tab, by default:

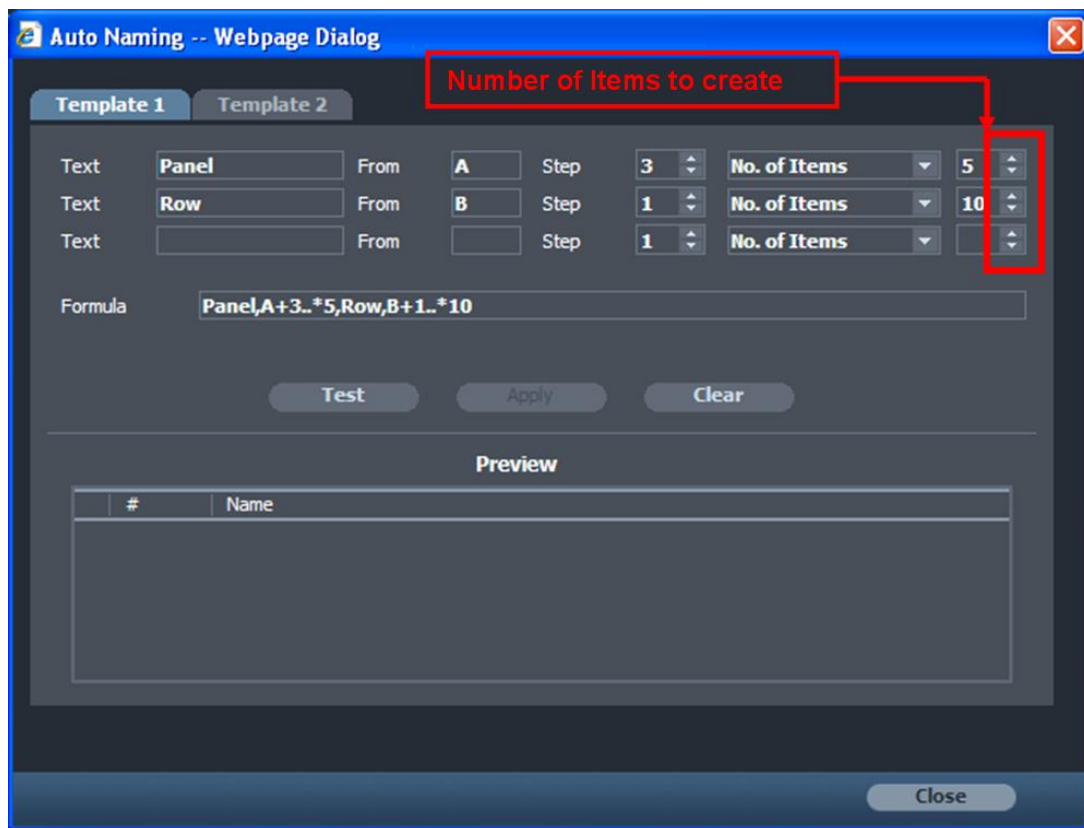




Figure 78 – Auto Naming – template 2 dialog

2. In the *Text* field enter the name of the panel. Note that the Text fields are static, meaning, entered text will appear in all the generated names. The rest of the fields are dynamic and will change according to the set criteria
3. In the *From* field enter the initial value. 'A' has been used in the above example. This value is dynamic, meaning, the generated names will have different values
4. In the *Step* field, the default increment is 1. To change, use the  buttons. The purpose of this field is to define how the value, that was set in the *From* field, will be increased. For example, if the value set in the *From* field is 'A' and the step set for 2, then the generated values will be 'A', 'C', 'E' etc.
5. In the *No of items* field enter the number of items using the  buttons. See the following example:

Once you click *Test* the following formula is displayed in the *Preview* field. The following example is based on the above (see fig 109).

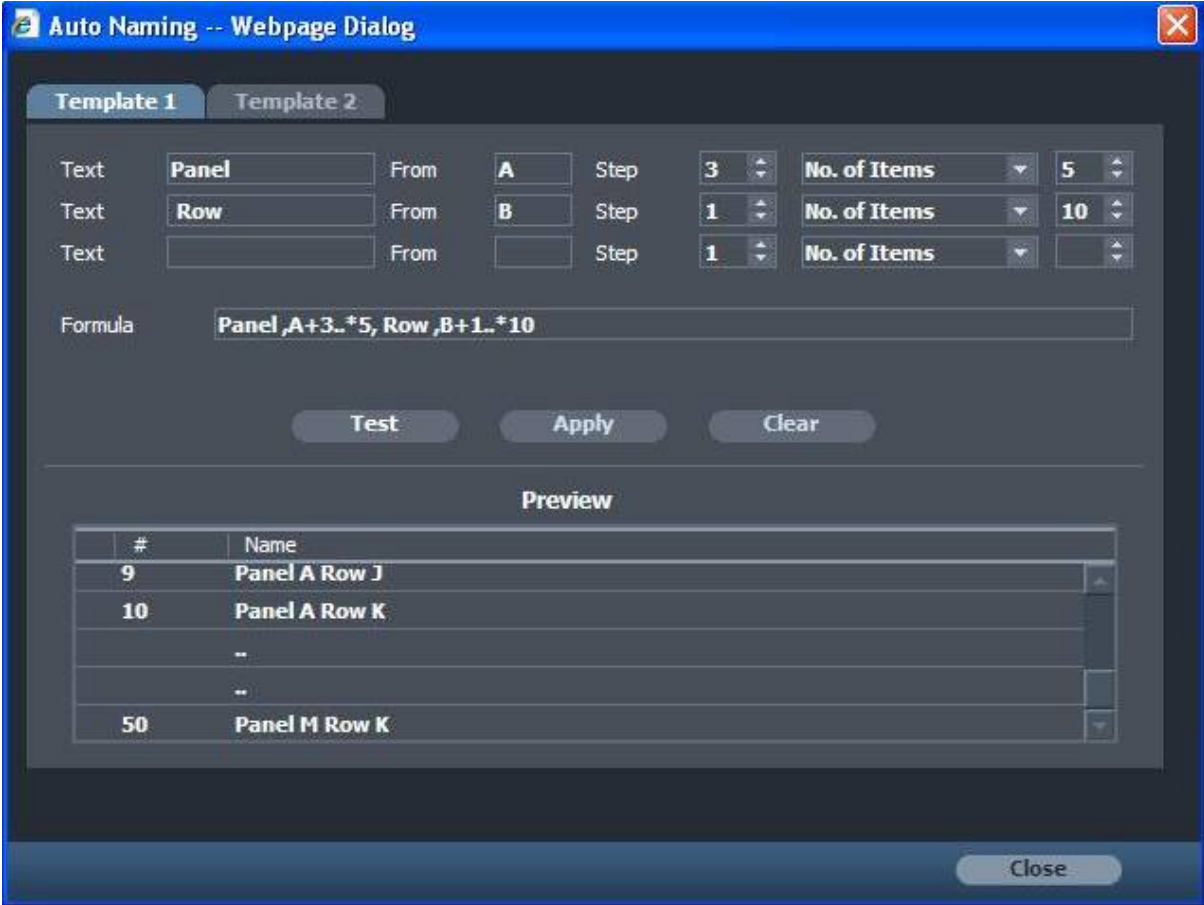
Panel - From A - Step 3 - No. of Items 5

Row - From B - Step 1 - No. of Items 10

The return string is based on the numbers entered in the *Number of items to create* field. The number in the first field is multiplied by the number in the second field and so on. For example  $5 \times 10 = 50$ . If the third row is populated, and the number in the items created field is 5 then the return string will be:  $5 \times 10 \times 5 = 250$ .

Click **Test** to check results. Then click **Apply**.

The *Preview* screen displays the information.



The screenshot shows a software dialog box titled "Auto Naming -- Webpage Dialog". It has two tabs: "Template 1" (selected) and "Template 2". Under "Template 1", there are three rows of configuration. Each row has a "Text" label, a text input field, a "From" label, a letter input field, a "Step" label, a numeric step input field, and a "No. of Items" label with a dropdown and a numeric value input field. The first row is configured with "Panel", "A", and "3". The second row is configured with "Row", "B", and "1". The third row is empty. Below these is a "Formula" field containing the text "Panel,A+3.\*5, Row ,B+1.\*10". There are three buttons: "Test", "Apply", and "Clear". A "Preview" section contains a table with two columns: "#" and "Name". The table shows a sequence of names from "Panel A Row J" to "Panel M Row K" with corresponding row numbers. A "Close" button is at the bottom right.

#	Name
9	Panel A Row J
10	Panel A Row K
	--
	--
50	Panel M Row K

Figure 79 – Auto Naming Template 1 dialog

## Template 2

Template 2 has a specific format and is only used to create panels according to the number of ports as well as rename ports.

1. From location tree, select a port and right-click. Select **Duplicate** from the context menu (see *fig 108*). The following Auto Naming screen opens:

**Auto Naming -- Webpage Dialog**

Template 1 | **Template 2**

Use this template to indicate the port range within the item name.

**Item**

Text:  From:  Separator:

Step:  No. of Items:

**Port**

Text Front Port:  Text Back Port:

**Preview**

#	Name

Figure 80 – Auto Naming – template 2 dialog

2. In the *Text* field, enter the name
  3. In the *From* field enter the number of the panel
- Click **Example** to view a completed template.
4. Click **Test** to check results. Then click **Apply**.
- The following *Auto Naming* screen is updated:



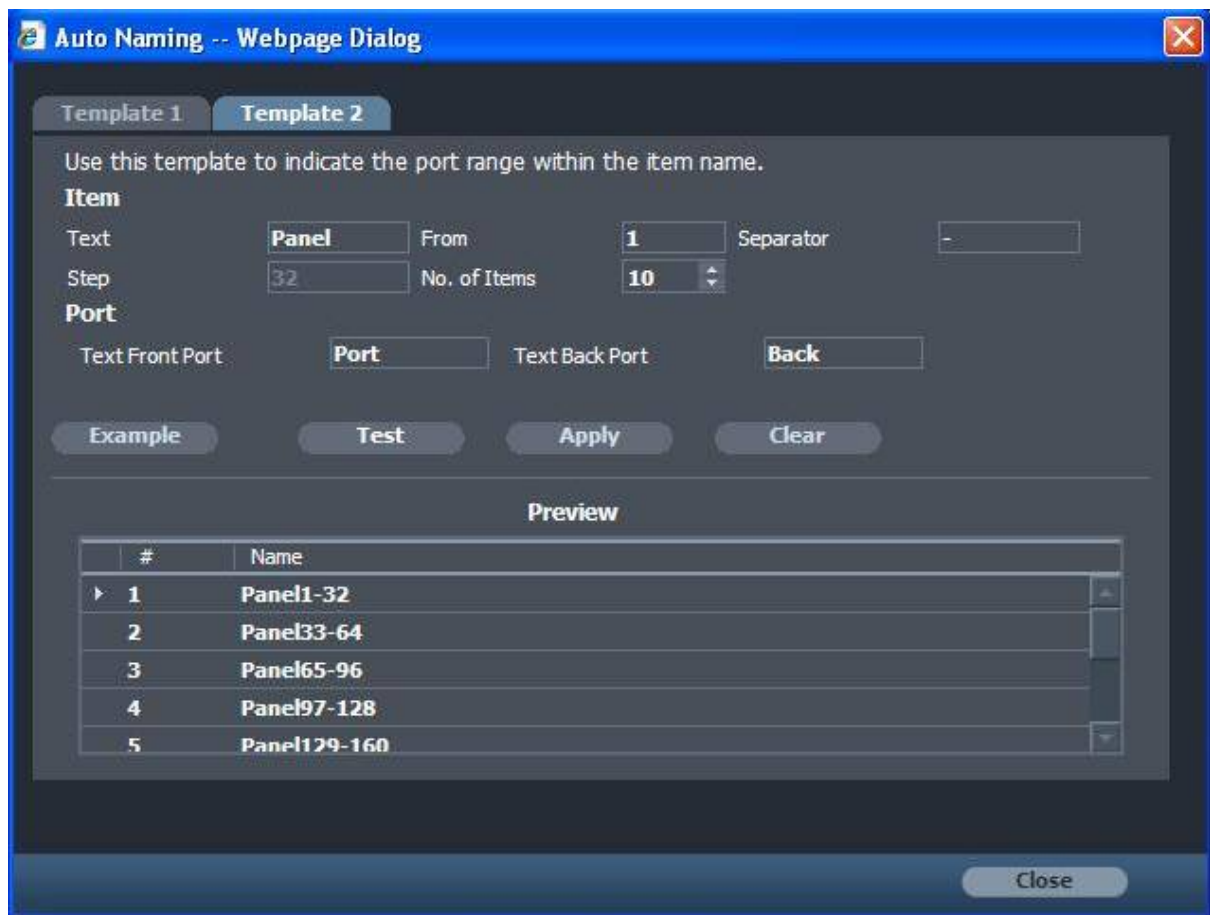


Figure 81 – Auto Naming – template 2 dialog

## Location Types

The Location Types in the pull down menu are in the order of the recommended hierarchical structure. However it should be noted that any Location Type could be selected and inserted under a specific Parent Location. For example, a building could be inserted directly under the Country.

Add Other is used for a Location Type that is not listed as an option. As it is possible to use any Location Type in any level of the Hierarchical tree, you could use, for example, the type Other as the Company name. The example in this User Manual uses Other as the first level location.

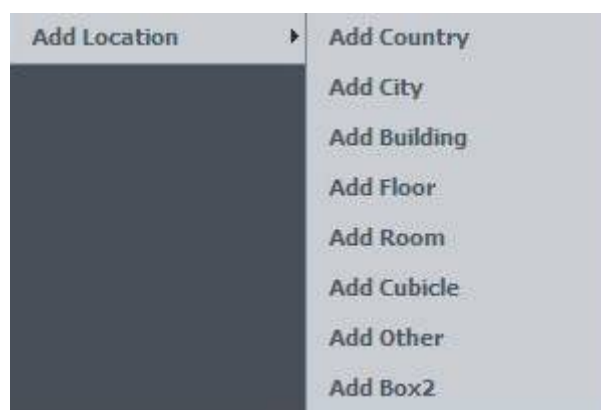








Figure 82 - The Location Pull Down Menu Window

The following are the default Location Types and their Icons.

Item type	Icon
Country	
City	
Building	
Floor	
Room	
Cubical	
Other	

**Note:**

*Additional Location Types can be added.*

## Adding, Editing and Deleting a Location

A Location can be added to the Location Tree and edited at any time. These Locations can be deleted as long as no other Locations are listed under them in the tree and no Items have been placed in them.

By default, when you add a location to the tree, the new entry appears one hierarchical level lower than the level you selected. The level you select appears in the Add/Edit - Location dialog as the "Parent Location" level. For example, if you define "building 1" and you want to add floor locations, you should right-click "building 1" and then click New to add a floor under "building 1".

This process should be repeated for all the levels as you define the Location Tree.

When adding the first level location to the tree, this becomes the parent location and all other locations listed below this are part of this branch of the tree.

It is therefore advisable to give the parent level the name of the company. This facilitates easy additions of other parents in the Location Tree.

In the case of multiple locations being added to the location tree, an Auto Naming facility is available.

The procedure to add a Location to the Location Tree is basically the same for all Items from the 2nd level down.

The following sections explain in detail how to Add, Edit and Delete Locations for both the 1st level and subsequent levels of the Location Tree.

All Items assigned to a Location can be accessed from the Location Tree. If there is more than one item assigned to the relevant location, double-click the location to view all of the items located there. You can view the properties of each Item, as well as add new items and edit existing ones from the Location Tree.

## Adding a First Level Location

### > To Add a First Level Location

1. Select the Location folder in the Location Tree.

The Add Location dialog can be accessed in two ways:

2. Right-click the selected Location in the Location tree.  
Or:
3. Click on the Action button at the bottom of the screen.  
The Add Location pull-down menu will appear in either option.



Figure 83 - Add Location Pull Down Menu Window

4. Select and click on the Location Type that you would like to define.  
The Add/Edit Location dialog will open.

Figure 84 - Add/Edit Location dialog

5. Type in the name of the Location.
6. Add the Description (optional).

**Tip:**

*Keep the description short and relevant as this will be used as a Sort criterion.*

To use the Auto Naming facility. See *Auto Naming Feature*.

To assign a new icon see ***Using Icons***.

7. Select OK or one of the buttons to proceed.

## Adding a Location under a Parent Level

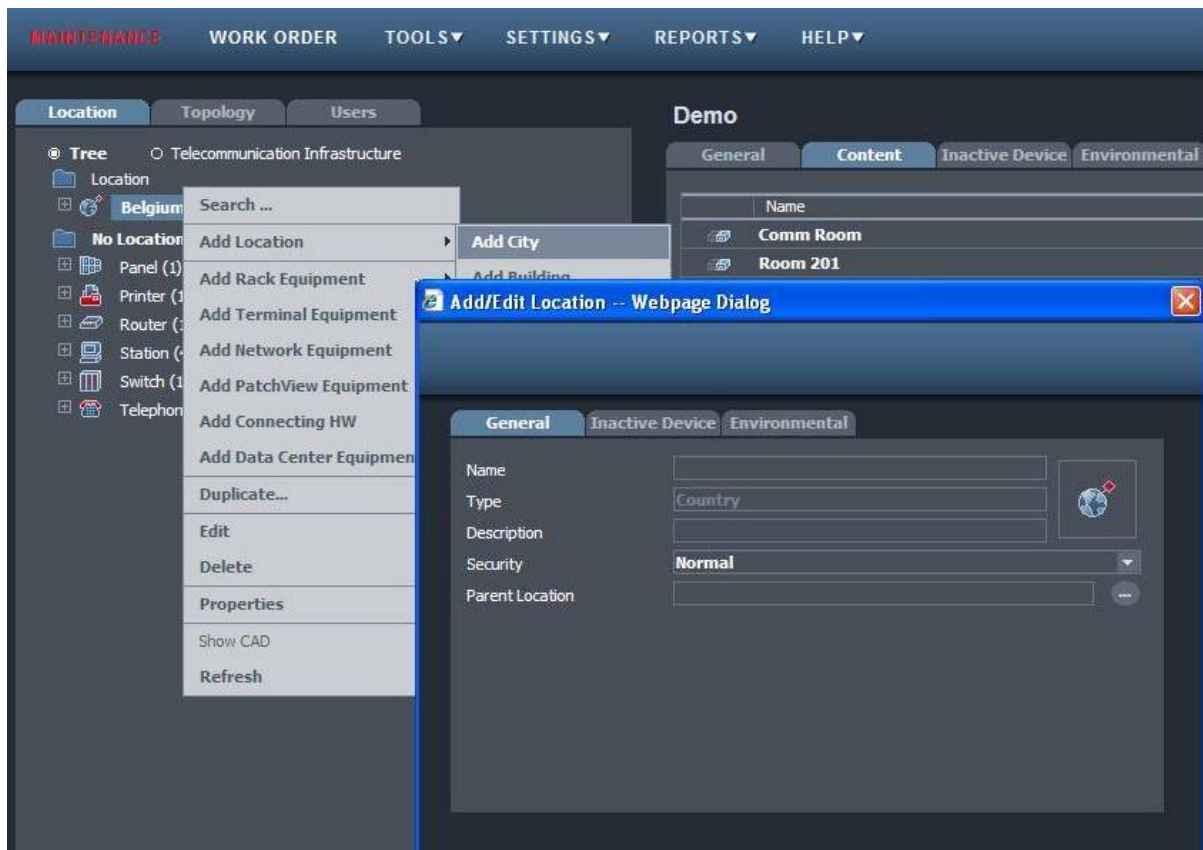
These Locations are added to the Location Tree from the second level down. The options available in the Pull down menu are different.

### > To Add a Location under a Parent Level

1. Select the Location Type in the Location Tree.
2. Right-click the selected Location Type.  
A pull-down menu will appear. Select Add Location and Type.
3. Click on the Location Type that you would like to define.

**Note:**

*The Parent Location field will now show the name of the parent.*



*Figure 85 - Adding a Location under a Parent Level Window*

4. Type in the name of the Location.
5. Add the Description (optional).
6. To use the Auto Naming facility. See Auto Naming Feature.
7. To assign a new icon please see the Assigning New Icons Section.
8. Select **OK** or one of the other buttons to proceed.

## Editing a Location

You can edit a Location at any time.

When a Location is selected in the Location tree, information will appear in the Data Area. There are two Tab options available:

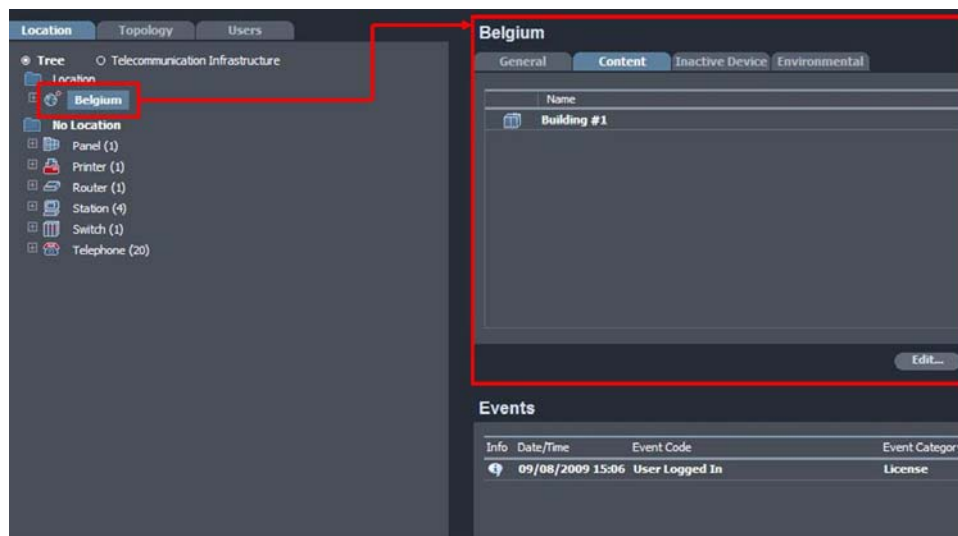
- General - A brief description of the Location
- Content - Provides a list of Items listed under this Location

**Note:**

*The Content tab will only appear if there are items listed under the Location.  
This list cannot be edited.*

> **To Edit a Location**

1. In the Location tree, click on the name of the Location that you would like to edit. The information will appear in the Data Area.



*Figure 86 - Editing a Location Window*

The Edit Location dialog can be accessed in three ways:

1. Right-click the selected Location in the tree and select Edit from the pull-down menu.  
Or:
2. Click on the Action button in the Location Toolbar and Edit.  
Or:
3. Click on the Edit button in the Data Information Pane.  
The Add/Edit dialog will open.
2. Edit the Location.  
To use the Auto Naming facility. See *Auto Naming Feature*.
3. Select **OK** or one of the buttons to proceed.

## Deleting a Location

Locations can be deleted from the Location Tree.

**Note:**

*When deleting a Location, ensure that no Items or other Locations are defined under that specific Location. If there are then move or delete them before attempting to delete the specific Location.*

> **To Delete a Location**

1. In the Location tree, locate and select the Location you want to delete.

The Delete command can be accessed in two ways:

1. Right-click the Location in the Location tree and select the Delete function from the pull-down menu.

Or:

2. Click on the **Delete** button in the Location Toolbar.

A message appears asking you to confirm the deletion.

2. Click either the **OK** or the **Cancel** button to proceed. The selected Location will be deleted from the Location tree and from the database.

> **To Delete a Multiple Selection of Locations**

Deletion of Multiple Locations or Items can only be made if they are in the same branch of the hierarchical tree.

A selection of items to be deleted can be made in two ways using either the <Alt> or the <Ctrl> Keys. The <Alt> key is used when the locations/items to be deleted are in a consecutive list. The <Ctrl> key when the locations/items to be deleted are not directly under one another.

1. In the Location tree, locate and select the first Location that you want to delete in a list.
2. Hold down either the <Alt> or the <Ctrl> button on your keyboard and make the selection.

The Delete command can be accessed in two ways:

1. Right-click on the selection and select the Delete function from the pull-down menu.

Or:

2. Click on the **Delete** button in the Location Toolbar.

A message appears asking you to confirm the deletion.

3. Click either the **OK** or the **Cancel** button to proceed. The selected Classes will be deleted from the Location tree and from the database.

## Adding a Company to the Location Tree

It is possible to add as many companies as required to run your enterprise.

**Tip:**

*It is advisable to start with the Company Name as the first level in the hierarchical tree even if the enterprise is not a data-center, as it is not possible to add it to this specific branch of the tree at a later stage.*

> **To add a Company**

1. Select and right click on the Location folder in the Location Tree. The Add Location pull-down menu will appear.
2. Select Other as the Location Type as there is not a company category. The Add/Edit Location dialog will open.
3. Type in the name of the Company.
4. Add the Description (optional).

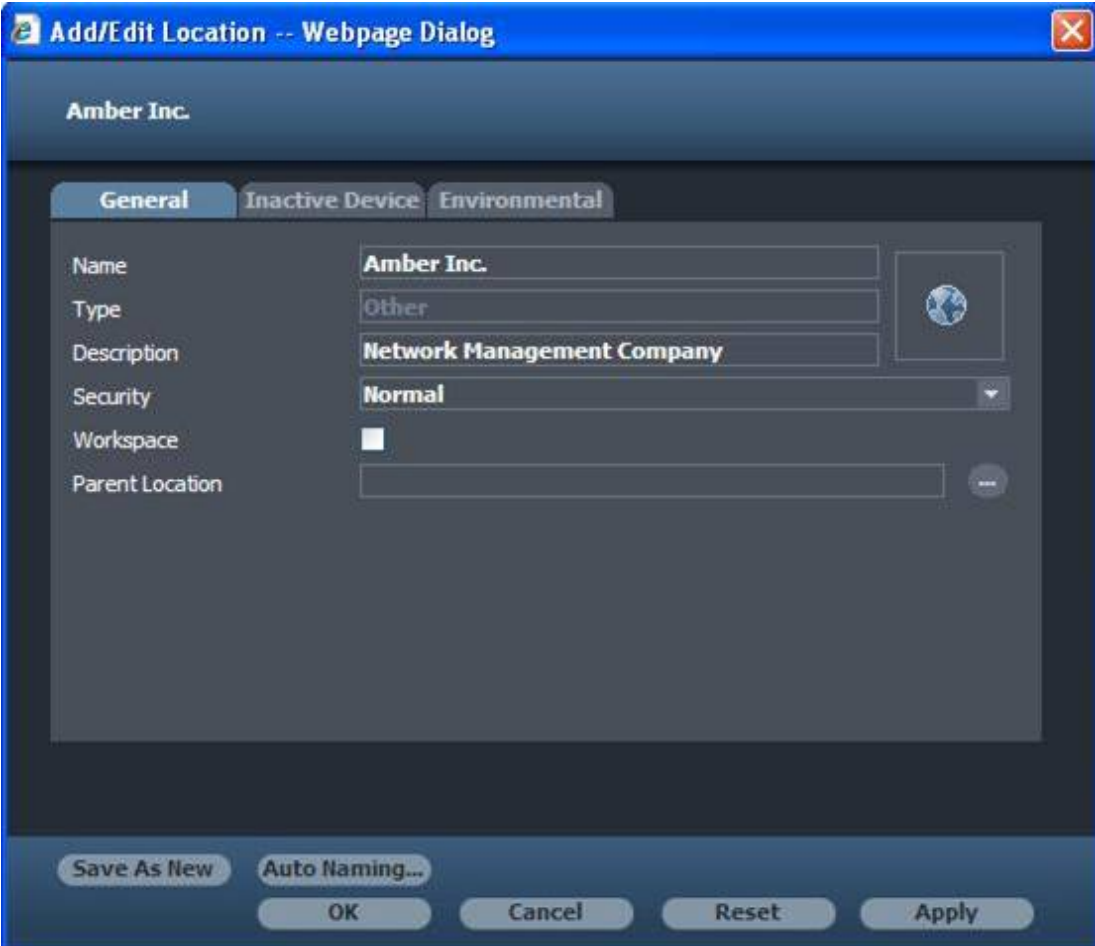


Figure 87 - Adding a Company Window

**Note:**

*The Parent Location field will be empty as this is a first level location. It cannot be edited.*

5. Click **OK** to proceed.

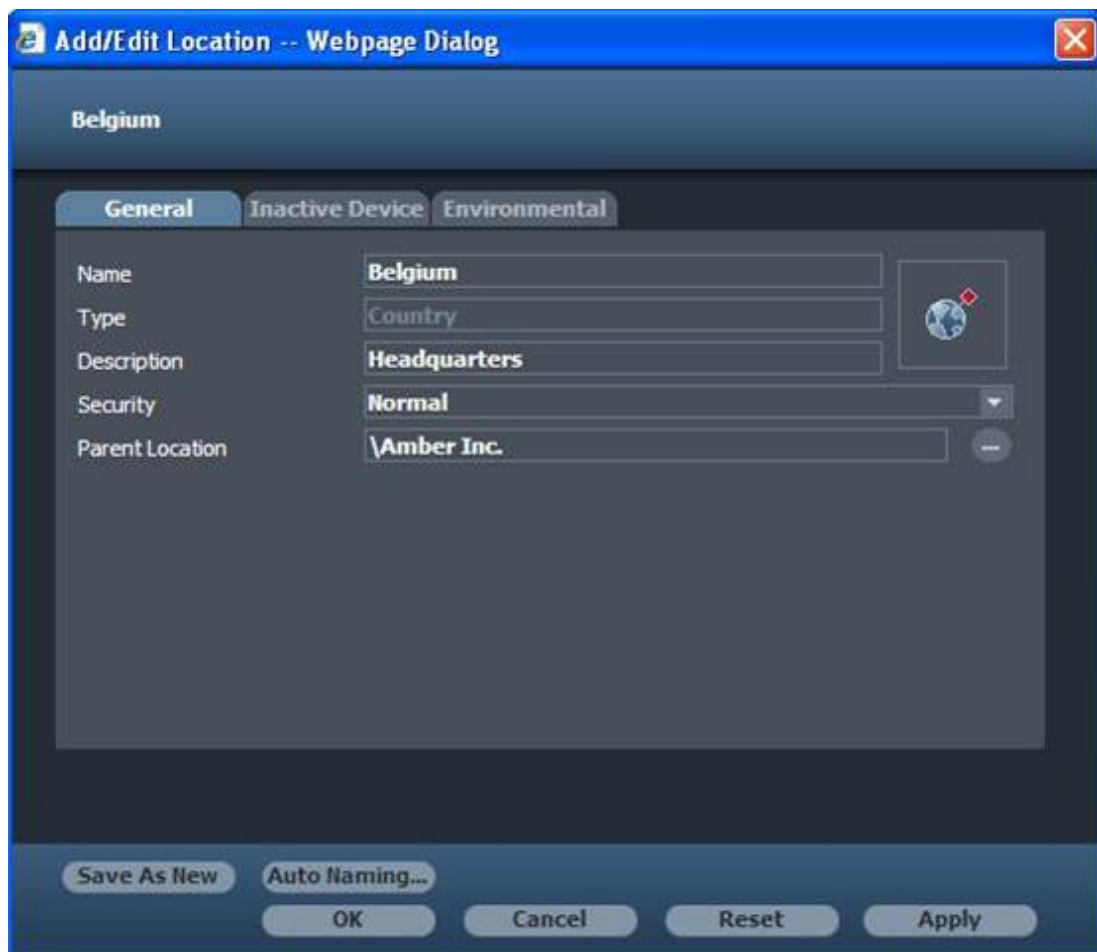


## Adding Countries to the Location Tree

As PV4E can be managed from remote locations, multiple countries can be added to the Location Tree.

> **To add a Country**

1. Select and right click on the Company name in the Location Tree.
2. A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
3. Select and click on Country.
4. The Add/Edit Location dialog will open.
5. Type in the name of the Country.
6. Add the Description (optional).



*Figure 88 - Adding a Country Window*

6. Click **OK** to proceed.

## Adding Cities to the Location Tree



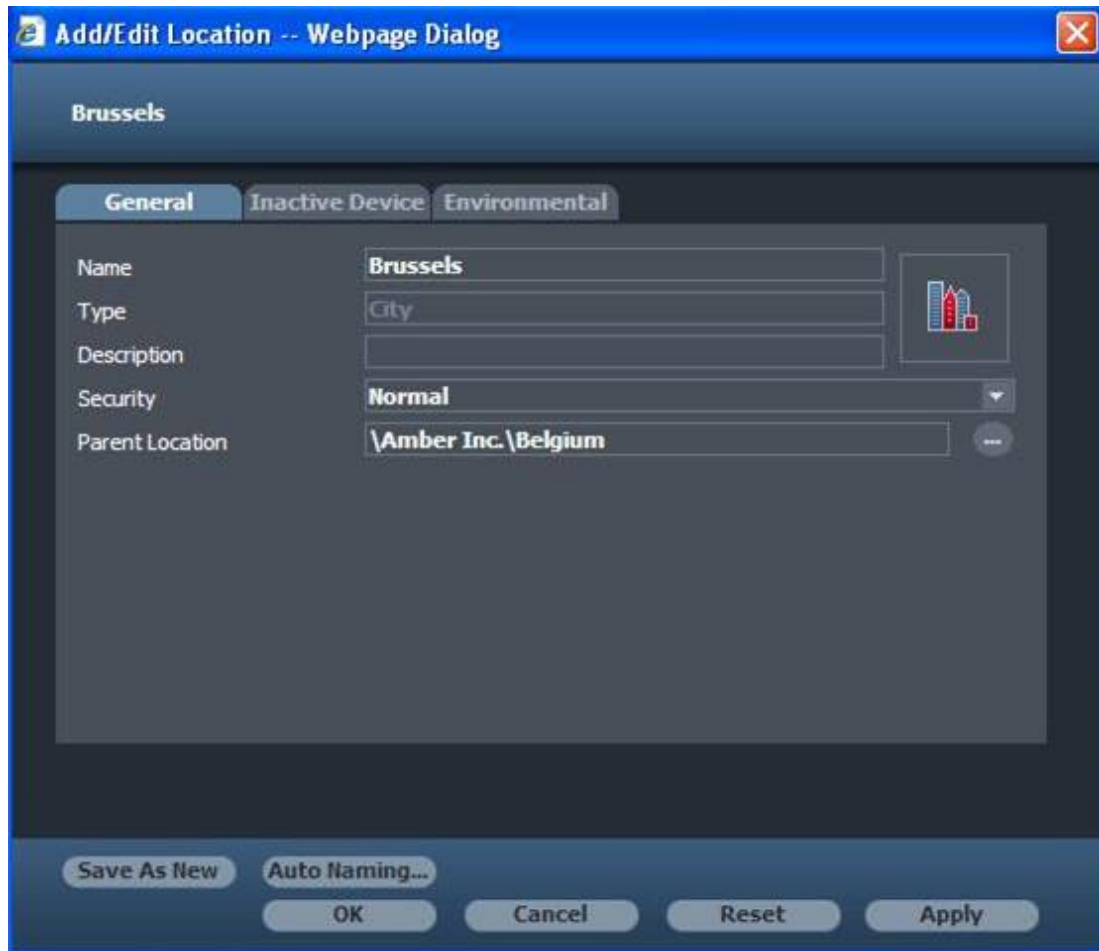
Either one city or multiple cities can be added to the location tree.

> **To add a City**

1. Select and right click on the Country in the Location Tree.

A pull-down menu appears. Move the cursor over the Add Location and a second menu appears.

2. Select and click on City.  
The Add/Edit Location dialog will open.
3. Type in the name of the Location.
4. Add the Description (optional).



*Figure 89 - Adding a City Window*

5. Click **OK** to proceed.

## **Adding Buildings to the Location Tree**

Some enterprises are operated on a campus where many buildings are connected. This example uses only one building, but it is possible to add as many buildings as required.

### **> To add a Building**

1. Select and right click on the City in the Location Tree.  
A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
2. Select and click on Building.  
The Add/Edit Location dialog will open
3. Type in the name of the building.

4. Add the Description (optional).

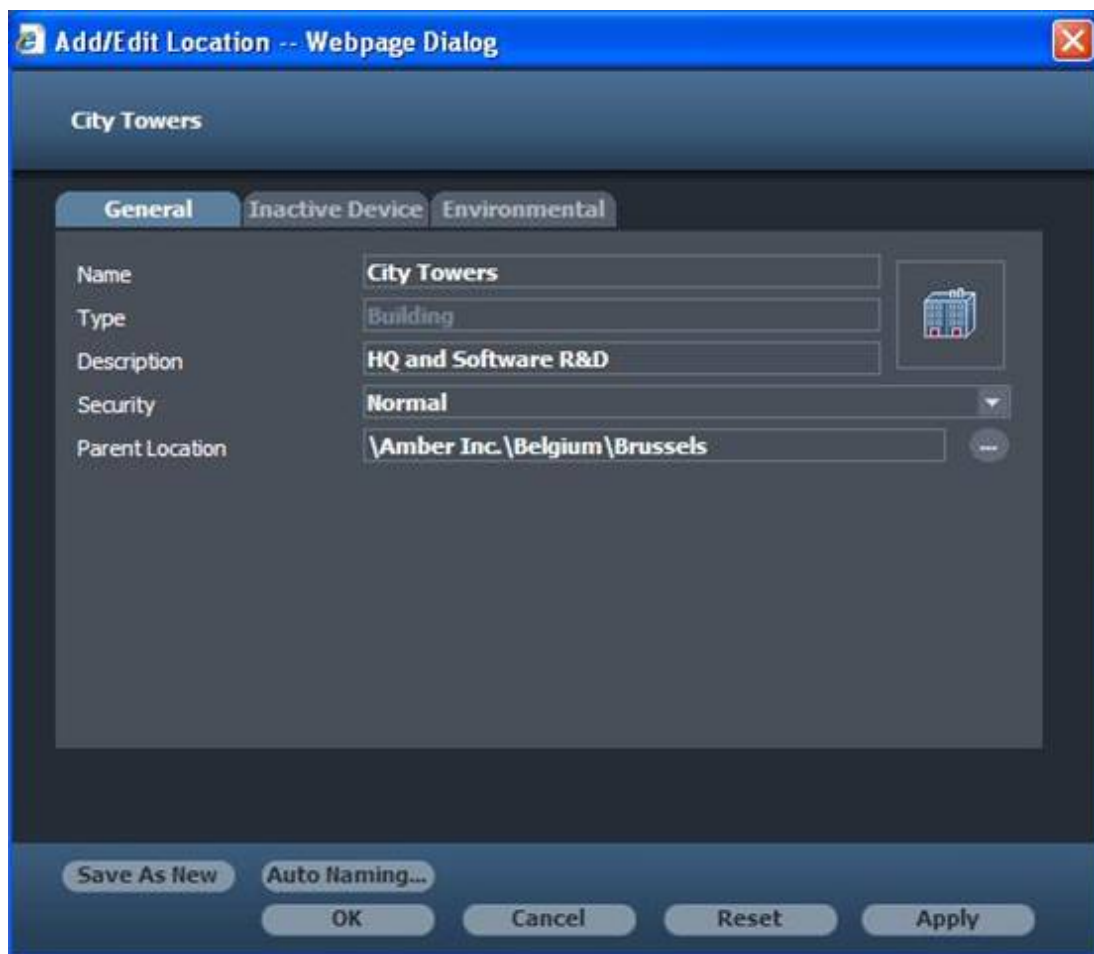


Figure 90 - Adding a Building Window

5. Click **OK** to proceed.

## Adding Floors to the Location Tree

Multiple floors can be added to the Location Tree. In this example the Auto Naming Feature will be used to name five floors.

### > To add Floors

1. Select and right click on the Building in the Location Tree.  
A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
2. Select and click on Floor.  
The Add/Edit Location dialog will open.

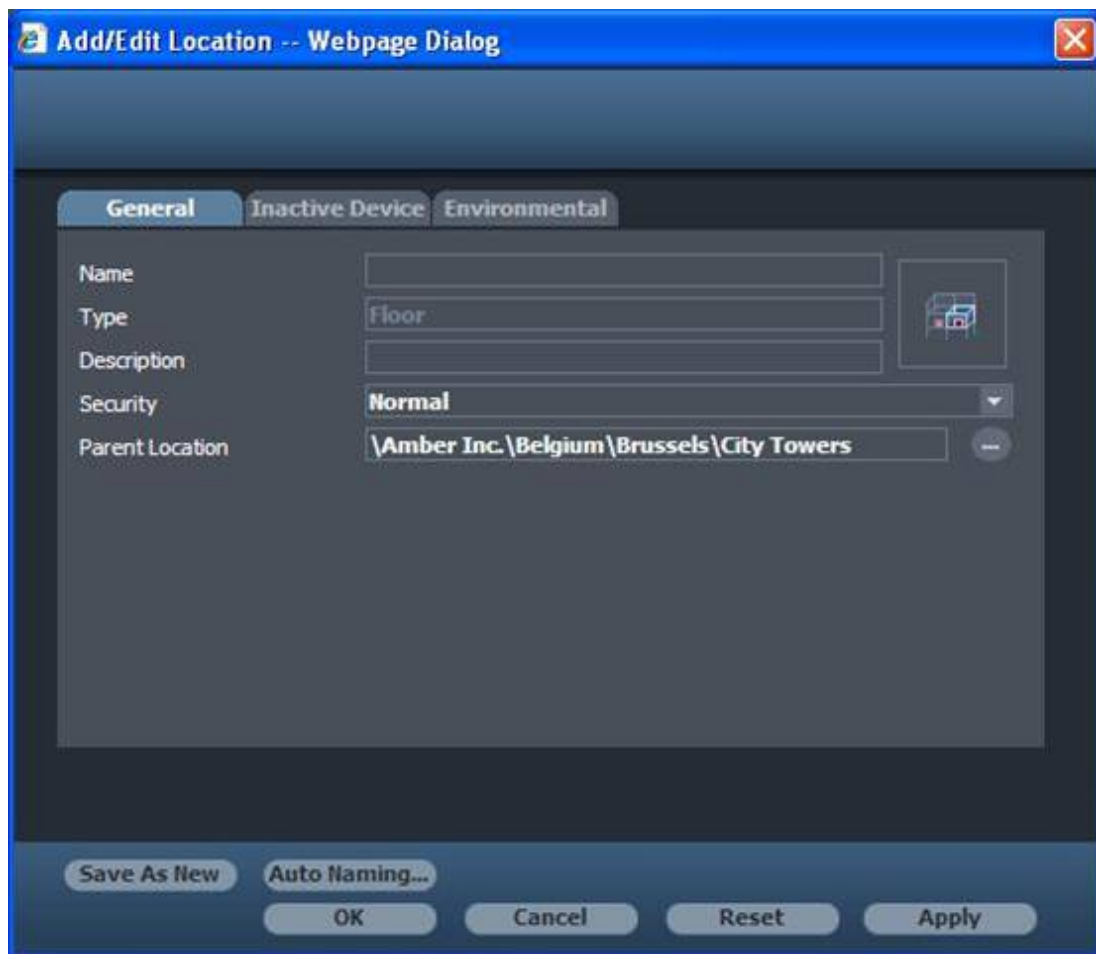
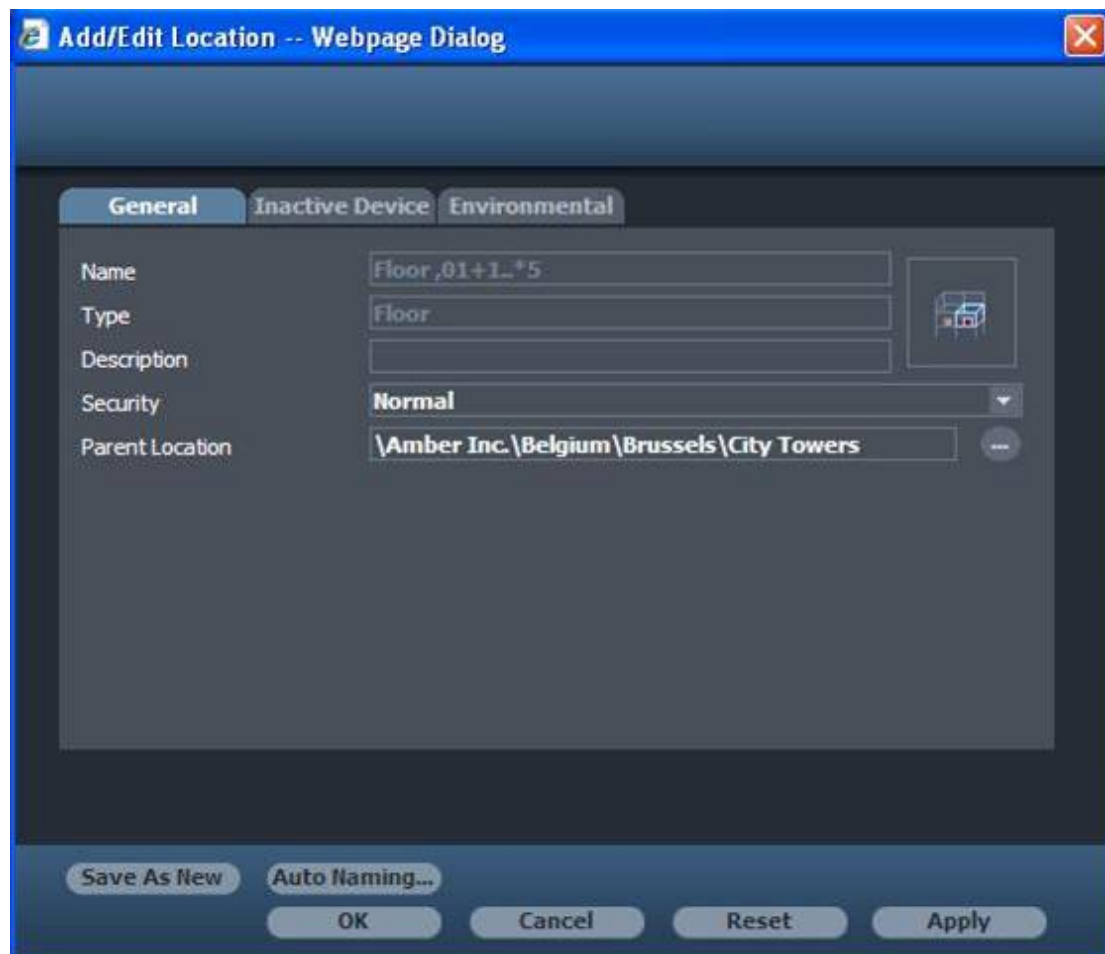


Figure 91 - Adding Floors Window

As the building has five floors the Auto Naming feature will be used.

3. Click the Auto Naming button and proceed as per instructions. See *Auto Naming Feature*.
4. Select and click on the Apply button to apply the Auto Naming of multiple floors.

The Auto Naming dialog box closes returning to the *Add/Edit* location dialog.



*Figure 92 - Add/Edit Location dialog*

5. Add the Description (optional).
6. Select the **OK** button or one of the other options to proceed.

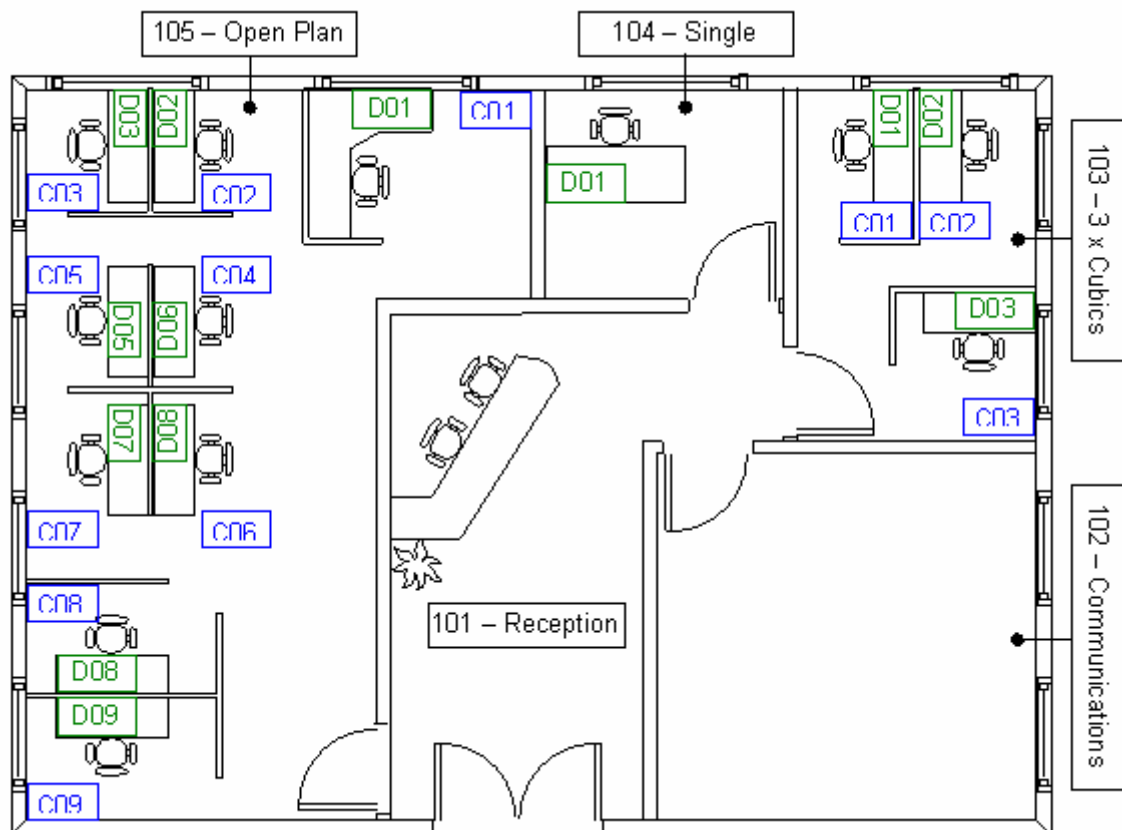


Figure 93 - Example of a Cad Drawing for one floor in a Building Window

## Adding Rooms to the Location Tree

Five Rooms will be added to Floor 01. Each room will be named individually according to this example of a CAD drawing. A similar map of a layout can be used. Whatever is used it is advisable to have it available before beginning the floor layout in the Location Tree.

### > To add a Room

1. Select and right click on the desired floor in the Location Tree. In this example it is Floor 01.  
A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
2. Select and click on Room.  
The Add/Edit Location dialog will open.
3. Type in the name of the room.
4. Add the Description (optional).

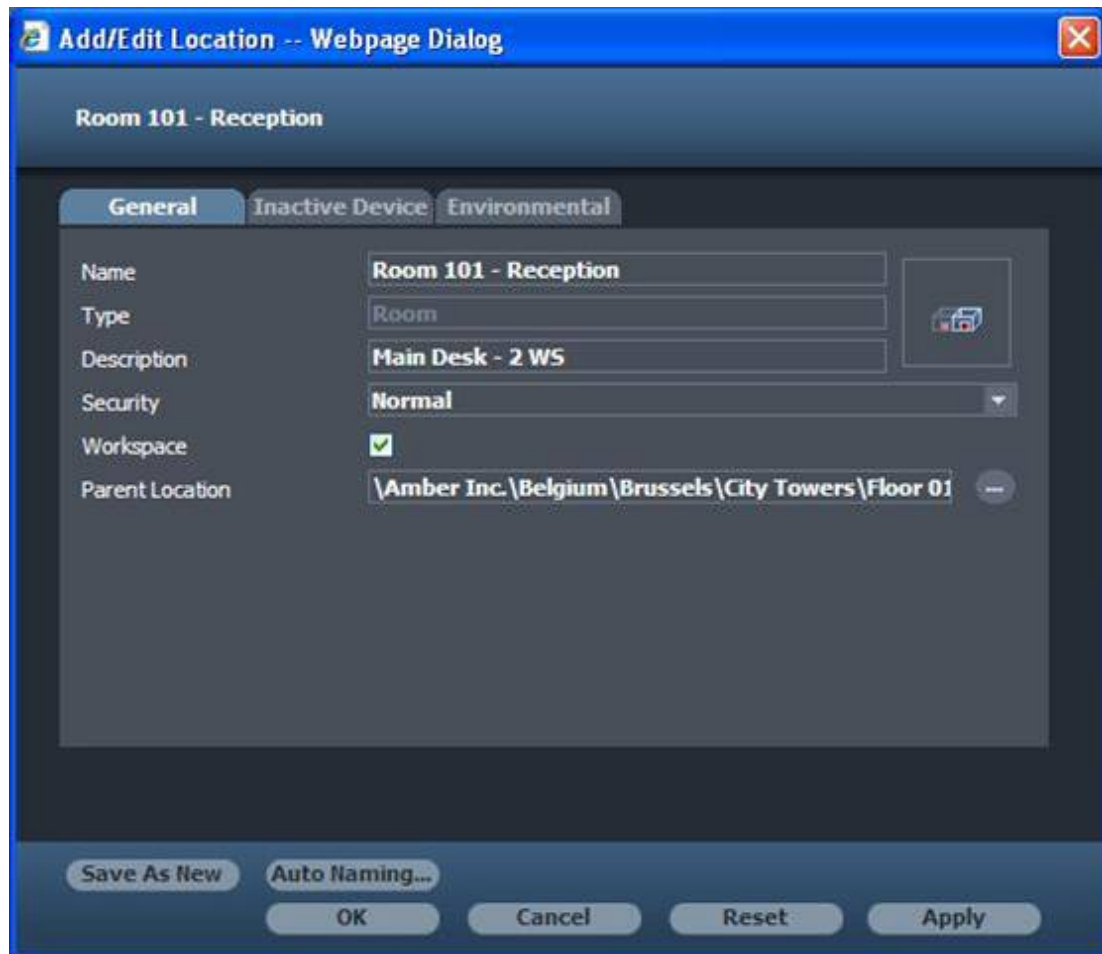


Figure 94 - Adding a Room Window

5. Click **OK** to proceed.
6. Repeat the process until all 5 rooms are named.

**Note:**

*The Auto Naming feature can be used to name the rooms if desired*

## Adding Cubicals to the Location Tree

### > To add a Cubicle

1. Select and right click on the desired Room in the Location Tree.  
A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
2. Select and click on Cubicle.  
The Add/Edit Location dialog will open.
3. Type in the name of the Cubicle.
4. Add the Description (optional).

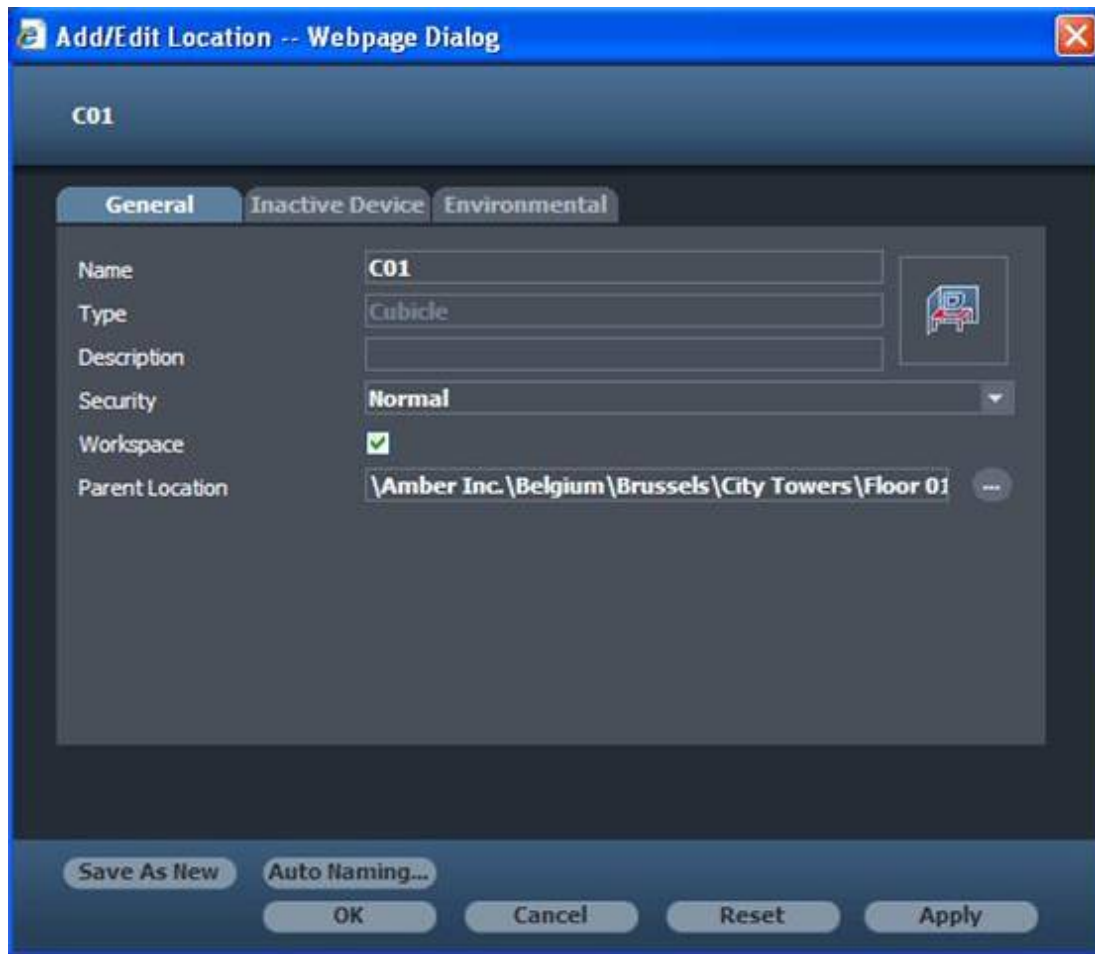


Figure 95 - Adding a Cubic Window

1. Click **OK** to proceed.
2. Repeat the process until all 5 rooms are named.

**Note:**

*The Auto Naming feature can be used to name the cubicles if desired*

## Adding Desks to the Location Tree

### > To add a Desk

1. Select and right click the preferred Cubicle in the Location Tree.  
A pull-down menu will appear. Move the cursor over the Add Location and a second menu appears.
2. Select and click on Other. (There is no specific Location Type defined for desk)  
The Add/Edit Location dialog will open.
3. Type in the name of the Desk.
4. Add the Description (optional).
5. Change the Icon to the Desk Icon. See Assigning Icons to a Catalog Item or



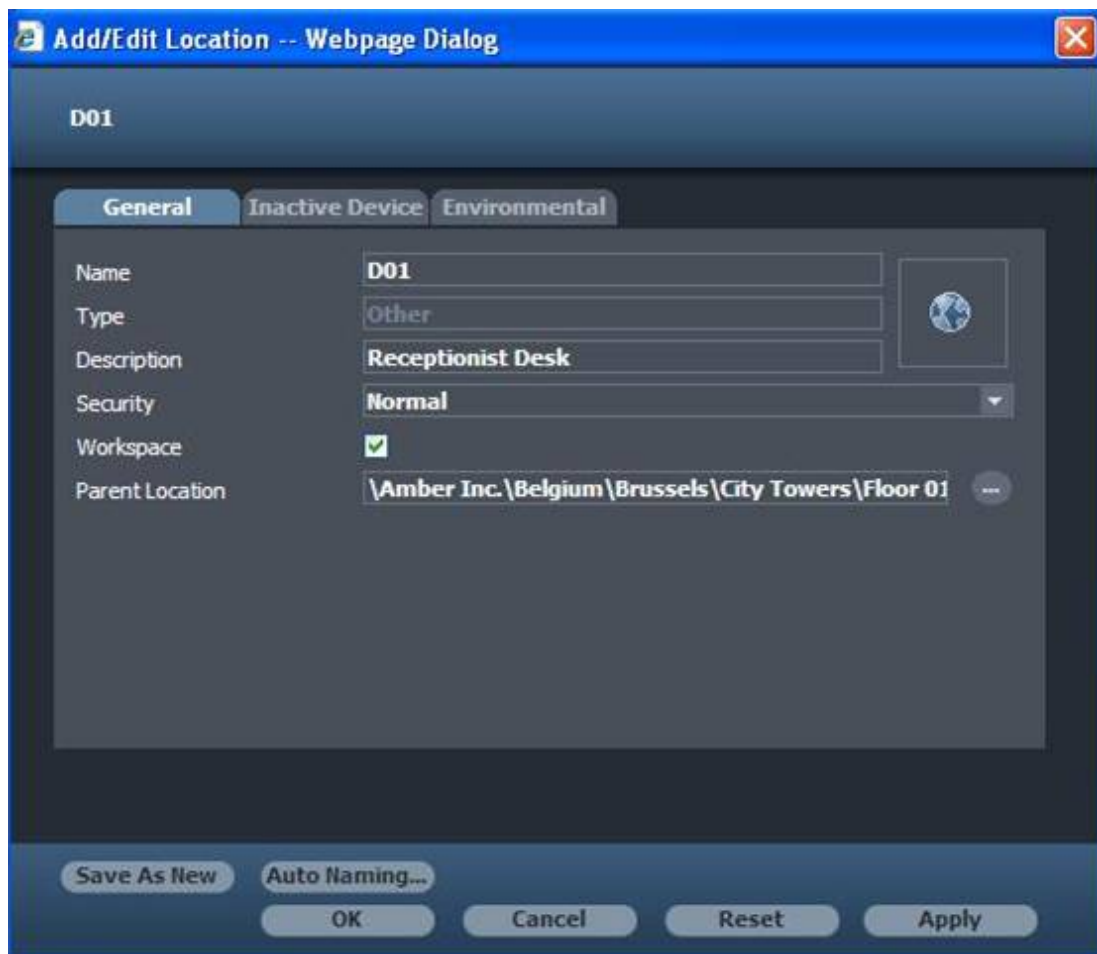


Figure 96 - Adding a Desk Window

6. Click **OK** to proceed.
7. Repeat the process until all desks are named.

**Note:**

*The Auto Naming feature can be used to name the desks if desired.*

## Extended Location Tree

The Location Tree extended to show its hierarchical structure.

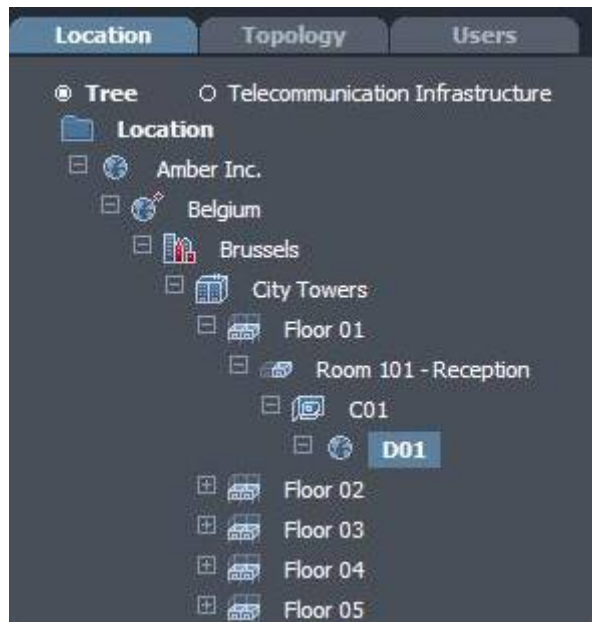


Figure 97 - Extended Location Tree

## Assigning Items to Location

All Items need to be defined in the Catalog of PV4E prior to defining them as inventory in the location tree. It is in the Catalog that general definitions and vital information is stored for a particular catalog item, and is used as a template for the inventory items defined in the location tree. It is this information that is referenced each time an item is assigned to a location. When an Item is deleted from the Location tree, the catalog item it was based on is not deleted from the Catalog Database.

Items need to be assigned to a location. This is done in the Location Tree. Each item that is assigned to a location will be given a unique name or ID.

The Location Tree is divided into two branches/sections:

- Location  
In Location Items are assigned directly to their specific location.
- No Location  
The No Location branch/section can be used to assign Items that are part of the company stock or inventory. These items can be assigned to a specific Location at any stage.

PV4E allows the user to name items in a variety of ways See *Auto Naming Feature*.

The Auto Naming feature allows you to name up to 1000 items at a time, giving each a unique name/ID.

Through the Location Tree, you can assign existing Items that have been defined in the Catalog. It is possible to delete an item that has been assigned to a Location, however the actual Item will not be deleted in the Catalog.

New Catalog Items can be added directly through the Location tree. The dialog both that will be accessed is the same as that used when adding or editing Items in the Catalog.

**Note:**

*You can assign a location to any Item except Cables and Users.*

Items can be moved from one location to another using the drag and drop method directly in the Location Tree, or in the edit mode by changing the Location.

## Adding, Editing, Moving and Deleting Items in Location

Before continuing with this section it is advisable to have available the information as to where Outlets (both network and telephone) are situated. Further information regarding the communication rooms containing Racks, Scanners, Patch- Panels and equipment will be needed.

**Tip:**

*As the Communications Room is most frequently used, it is suggested that it be positioned at the top of the tree.*

IP	Location	Topology	Rack	Scanner		S/N	Panels	Quantity & Name
					Name			
10.100.40.2	D1CommRm	Master	Rack 11	MASTER			Smart32U x10	RB/11P P01..10
(Medlrm)				SRU	Med/11/SS01	6433013	Smart32U x9	RB/11P P11..19
							Smart16U x1 (000)	RB/11P P20
	D3CommRm	Outdoor	Rack 12	MRU	Med/12/SS01	6433014	Smart32U x10	RB/12P P01..10
				SRU	Med/12/SS02	6433013	Smart32Sx10	RB/12P P11..20
	D2CommRm	Indoor	Rack 13	MRU	Med/13/SS01	6333007	Smart32U x10	RB/13P P01..10
				SRU	Med/13/SS02	8452356	Smart32U x10	RB/13P P11..20
		Local	Rack 14	SRU	Med/14/SS01	6333007	Smart32U x10	RB/14P P01..10
				SRU	Med/14/SS02	6413007	Smart32Sx10	RB/14P P11..20

Panel - TL<rack> PP<panel no> (panel type - U or S)

For Example : TL/11PP 11(U)

Master - <Master> Name-[IP]

For Example : Master Med-[2]

Scanner - Small<rack no>SS<scanner no>

Demo<rack no>SS<scanner no>

Big<rack no>SS<scanner no>

Med<rack no>SS<scanner no>

For Example : Big/11SS02

Note:

Rm Name	Building	Floor	Room
D1CommRm	A	01	102
D2CommRm	A	02	202
D3CommRm	B	04	404

IP	Location	Topology	Rack	Scanner		S/N	Panels	Quantity & Name
					Name			
10.100.40.2	D1CommRm	Master	Rack 11	MASTER		0	Smart32U x10	RB/11P P01..10
(MedIrm)				SRU	Med/11/SS01	6433013	Smart32U x9	RB/11P P11..19
							Smart16U x1 (D08)	RB/11P P20
	D3CommRm	Outdoor	Rack 12	MRU	Med/12/SS01	6433014	Smart32U x10	RB/12P P01..10
				SRU	Med/12/SS02	6433013	Smart32S x10	RB/12P P11..20
	D2CommRm	Indoor	Rack 13	MRU	Med/13/SS01	6333007	Smart32U x10	RB/13P P01..10
				SRU	Med/13/SS02	8452356	Smart32U x10	RB/13P P11..20
		Local	Rack 14	SRU	Med/14/SS01	6333006	Smart32U x10	RB/14P P01..10
				SRU	Med/14/SS02	6413007	Smart32S x10	RB/14P P11..20

Panel - TL<rack> PP<panel no> (panel type - U or S)  
 For Example : TL/11PP 11(U)  
 Master - <Master> Name-[IP]  
 For Example : Master Med-[2]  
 Scanner - Small<rack no>SS<scanner no>  
           Demo<rack no>SS<scanner no>  
           Big<rack no>SS<scanner no>  
           Med<rack no>SS<scanner no>  
 For Example : Big/11SS02

Note:  
 Rm Name    Building    Floor    Room  
 D1CommRm    A            01       102  
 D2CommRm    A            02       202  
 D3CommRm    B            04       404

Figure 98 - Example of a List of PatchView Equipment Window

## Adding Items to Location

### > To add an Item to Location

1. Select and right click on the Location in the Location Tree where the Item is to be assigned.  
A pull-down menu will appear.
2. Click on the required Functional Type.  
The *Add/Edit Inventory Item* dialog will open.
3. Type in the unique name of the Item.
4. Select the Class by clicking on the ☐ button (optional).  
Or add a new class by clicking on the Add button. This will open the *Add/Edit Class* dialog. Fill in the details and click the OK button to return to the *Add/Edit Inventory* dialog.
5. Select the Catalog Name by clicking on the ☐ button.  
Or add a new item by clicking on the Add button (optional).
6. Change the location (optional). See *To change the Location of an Item*.
7. Fill in the information in other tabs if required.
8. Click **OK** to proceed.

### **Note:**

*The unique name may appear in different locations. It is defined as unique according to its parent location.*

## Editing Items in Location

### > To edit an Item in Location

1. In the Location tree, click on the name of the Item that you would like to edit. The information will appear in the Data Area.
2. The Edit Inventory Item dialog can be accessed in three ways:
  1. Right-click the selected Item in the tree and select Edit from the pull-down menu.  
Or:
  2. Click on the **Action** button in the Location Toolbar and Edit.  
Or:
  3. Click on the **Edit** button in the Data Information Pane.  
The Add/Edit dialog will open.
4. Edit the Item.
5. To use the Auto Naming facility see *Auto Naming Feature*.
6. Select one of the following options to proceed.

## Moving Items in Location

You can move an item including a Rack with all its contents at any time. There are two methods available to do this. These are:

- Drag and Drop
- Change Location

### > To move an Item using the Drag and Drop method

1. In the Location tree, select the Item that you would like to move and position the cursor over the icon.

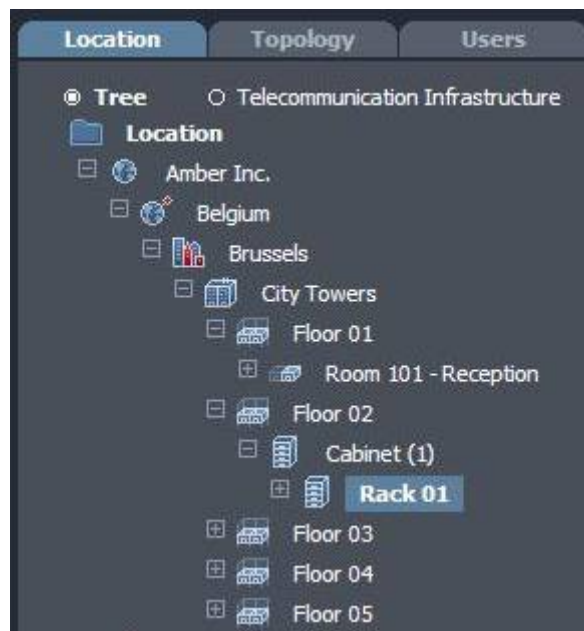


Figure 99 - Moving Items

2. Click and drag the item to the new location.
3. Release the mouse and the item will be assigned to the new location.

> **To change the Location of an Item**

1. Select the Item and choose the Edit mode.  
The *Add/Edit Inventory Item* dialog opens.

**Add/Edit Inventory Cabinet -- Webpage Dialog**

**Rack 01**

**General** | Items | Environmental | Data | Cooling

Name: Rack 01

Functional Type: Cabinet

Class: ----choice----

Catalog Name: Cabinet 45U

Size (U): 45

Power Limit (W): 300

Weight Limit (KG): 220

Location: \Amber Inc. \Belgium \Brussels \City Towers \Floor 02

U Order: ☒ Top to bottom ☐ Bottom to top

Rack Indicator:

Buttons: Add, Assign, Remove, Save As New, Duplicate..., OK, Cancel, Reset, Apply

Figure 100 - Add/Edit Inventory dialog

2. To change the location, click on the button.  
A dialog with the Location Tree will open.



Figure 101 - Location Tree dialog

3. Expand the tree and select the new location.
4. Select the Slot No. within the Rack if applicable. See Moving Items within a Rack.
5. Click on the **OK** button.

## Deleting Items from Location

Items can be deleted from the Location Tree. When deleting an Item from the Location Tree, it is deleted from the inventory but not from the Catalog. This Item can then be referenced at a later stage if required.

### **Note:**

*When deleting an Item, ensure that no Items or other Items are defined under that specific Item e.g. Rack. If there are then move or delete them before attempting to delete the specific Item.*

#### > **To Delete an Item**

See *Deleting a Location*.

### **Note:**

*When an Item is deleted from a Rack the slot that the item occupied remains empty. A new item can then be allocated to that slot.*

#### > **To Delete a Multiple Selection of Items**

See ***To Delete a Multiple Selection*** of Items.

## Adding Rack Equipment to a Location

This section explains how to add rack equipment to a location.

### Adding a Rack to Location

> **To add a Rack to a Location**

1. Right-click the Location. For example, the Communication Room in the Location Tree where the Rack is to be assigned.  
A menu appears.

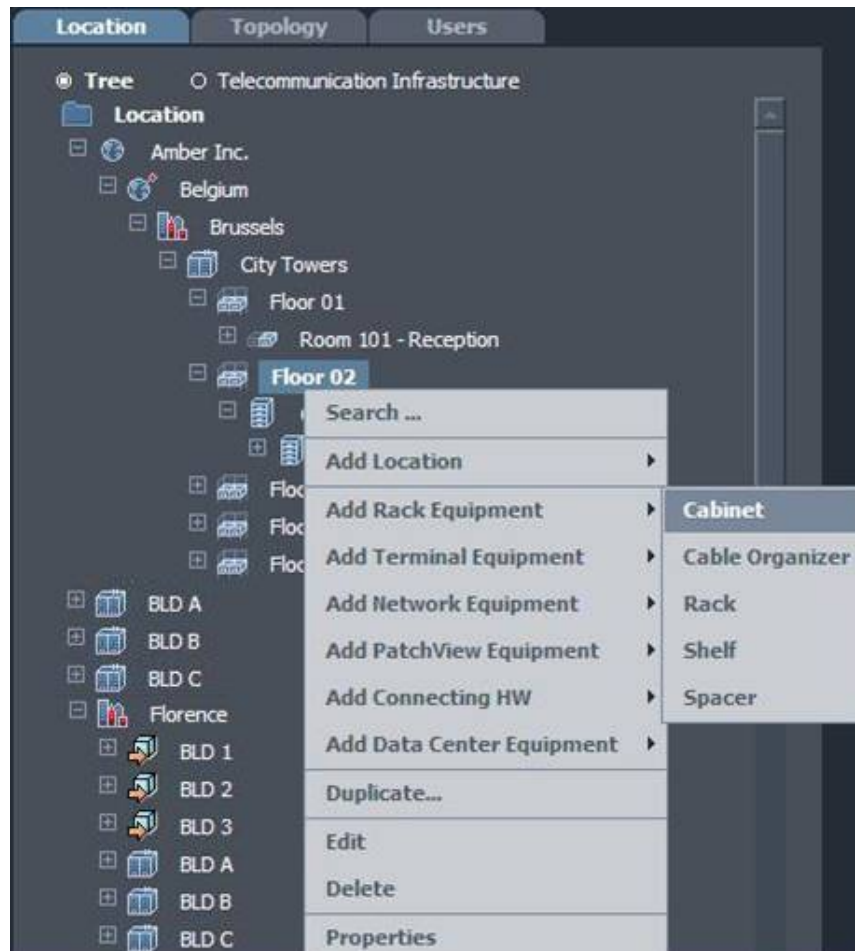


Figure 102 - Adding Rack Equipment Window

2. Select Add Rack Equipment.  
A drop-down list appears.
3. Click Rack.  
The *Add/Edit Inventory Rack* dialog box opens.




Figure 103 - Add/Edit Inventory Rack Dialog

1. Select the Catalog Name of the rack by clicking the button next to the Catalog Name field and choosing the rack from the available list, or add a new item by clicking the Add button.
2. In the Name field, type the name of the rack.

The following table explains the method for naming Racks.

BUTTON	TO...
OK	Add a single item. Type in the information required for the single item, and click the <b>OK</b> button.
Auto Naming	Automatically names multiple new Racks WITHOUT THEIR CONTENTS, in a pre-defined sequence.
Duplicate	Duplicate existing Racks, using their definitions but WITHOUT THEIR CONTENTS, by using the Auto Naming feature.
Save As New	Duplicate existing Racks, using their definitions and the content if specified.

The size of the rack is added by the system, according to the definition in the Catalog.

3. Select the Class by clicking the  button next to the Class field and choosing the class from the available list, or add a new class by clicking the Add button.
4. Click **OK** to proceed.

## Adding a Cable Organizer to Location

### > To add a Cable Organizer to Location

1. Select the Rack in the Location Tree where the Cable Organizer is to be assigned.
2. Right-click the selected Rack.  
A drop-down list appears.

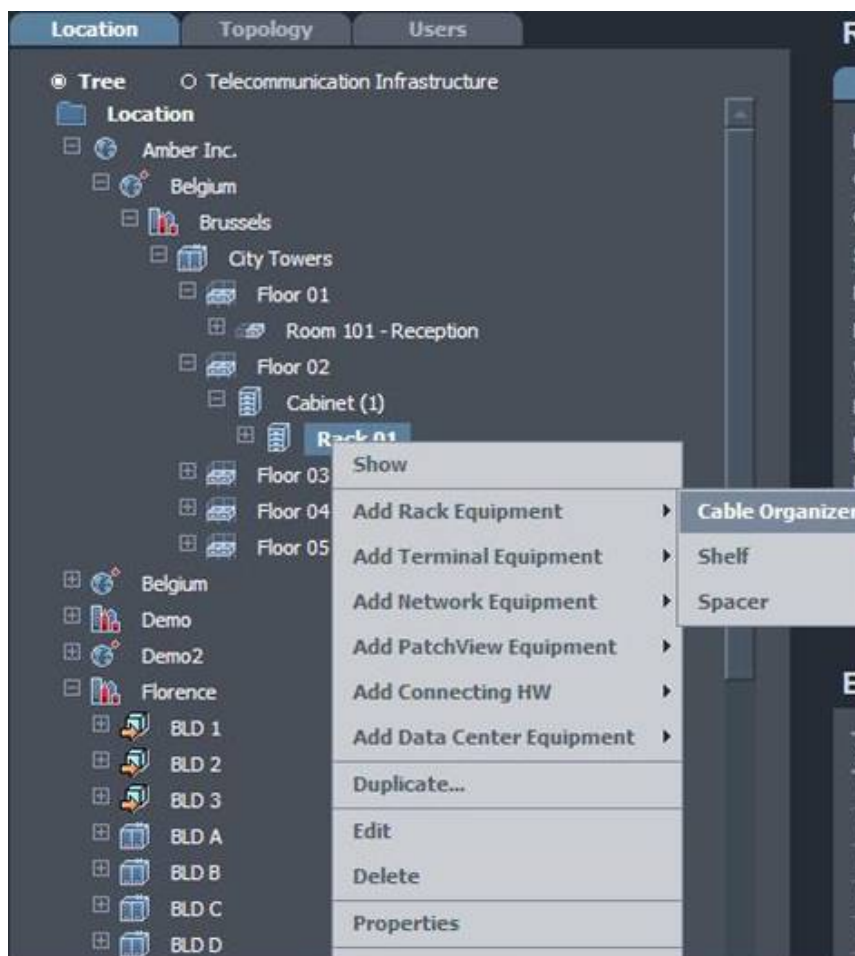
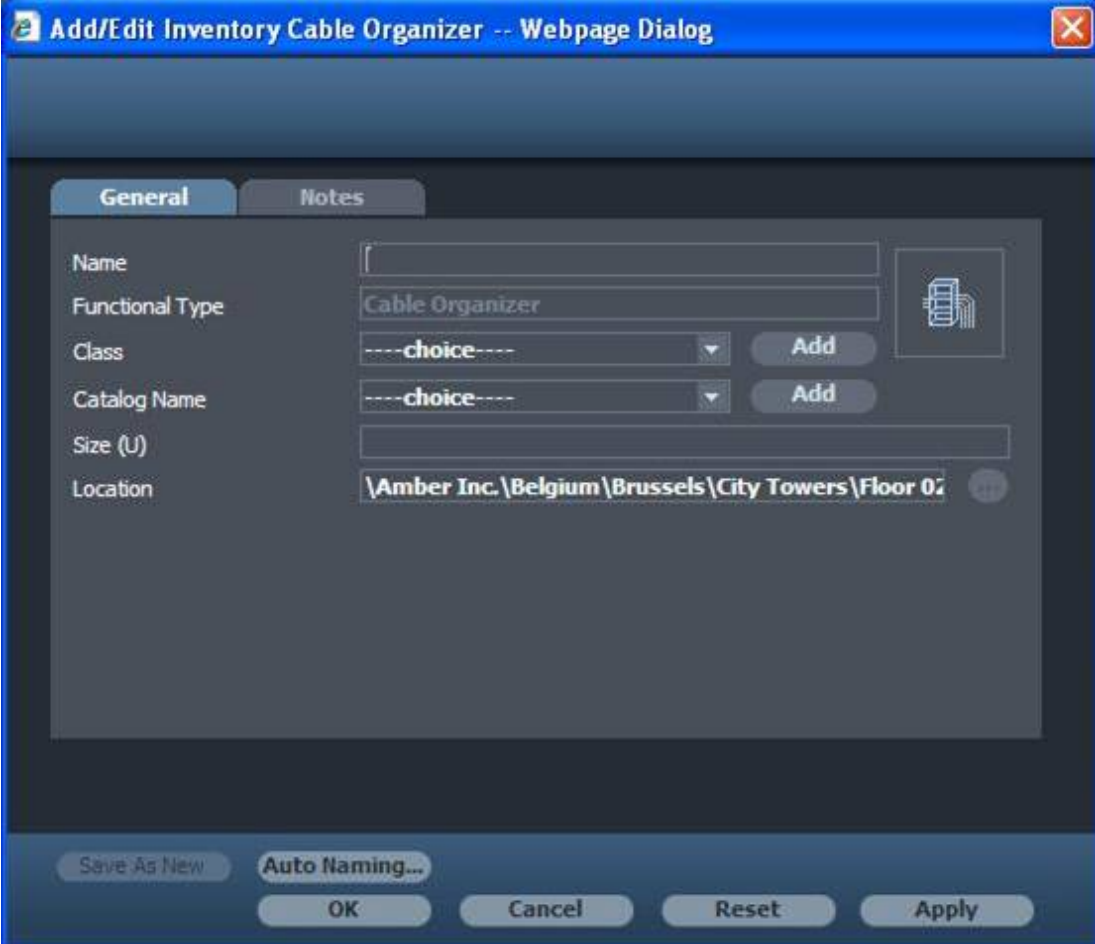


Figure 104 - Add Rack Equipment from Location Window

3. Select Add Rack Equipment.  
A drop-down list appears.
4. Click Cable Organizer.  
The *Add/Edit Inventory Cable Organizer* dialog will open.



**Add/Edit Inventory Cable Organizer -- Webpage Dialog**

**General** | Notes

Name: [ ]

Functional Type: Cable Organizer

Class: ----choice---- [Add]



Catalog Name: ----choice---- [Add]

Size (U): [ ]

Location: \\Amber Inc.\\Belgium\\Brussels\\City Towers\\Floor 02

Save As New | Auto Naming... | OK | Cancel | Reset | Apply

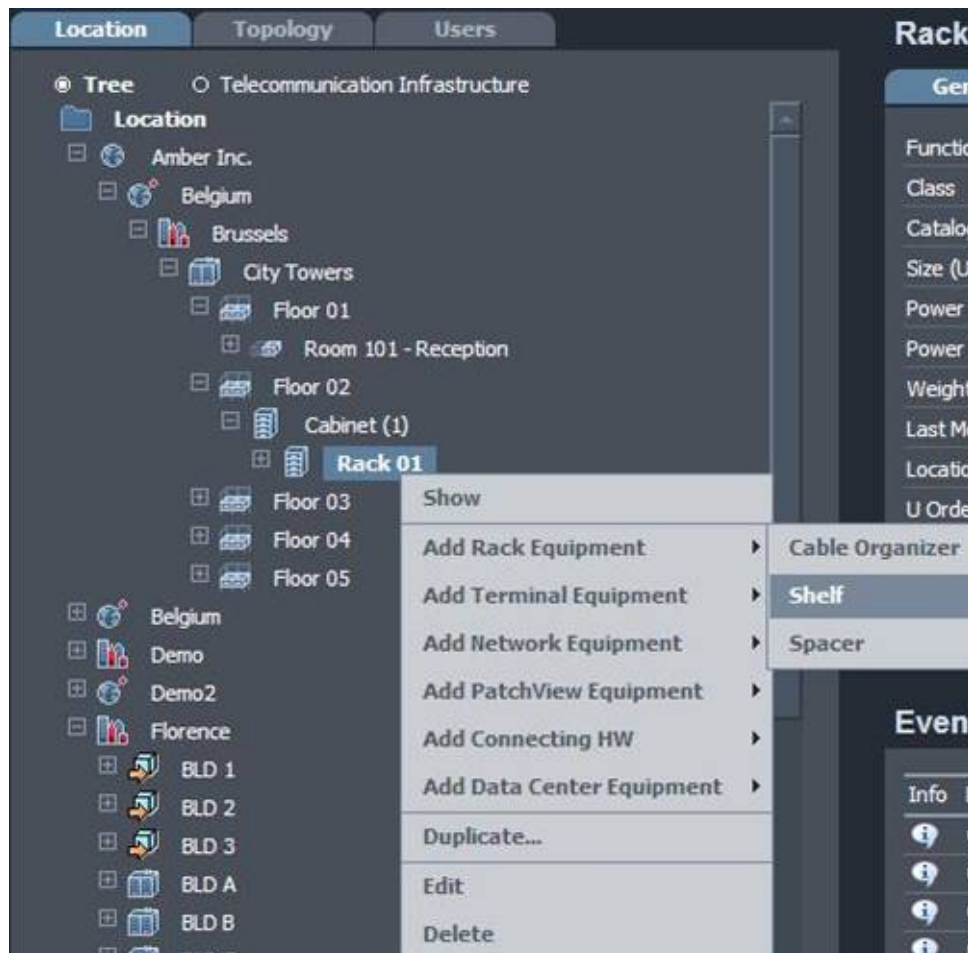
Figure 105 - Add/Edit Inventory Cable Organizer dialog

5. Select the Catalog Name by clicking on the  button or add a new item by clicking on the Add button.
6. Type in the name of the Cable Organizer.  
The Size of the Cable Organizer will be added by the system, according to what is defined in the Catalog. There must be enough room in the Rack for the Cable Organizer, otherwise the Cable Organizer is not accepted.
7. Select the Class by clicking on the  button or add a new class by clicking on the Add button.
8. Change the location (optional). See *To change the Location of an Item*.
9. Click **OK** to proceed.

## Adding a Shelf to Location

> **To add a Shelf to Location**

1. Select the Rack in the Location Tree where the Shelf is to be assigned.
2. Right-click the selected Rack.  
A drop-down list appears.



*Figure 106 - Add Rack Equipment from Location Window*

3. Select Add Rack Equipment.  
A drop-down list appears.
4. Click Shelf.  
The *Add/Edit Inventory Shelf* dialog will open.

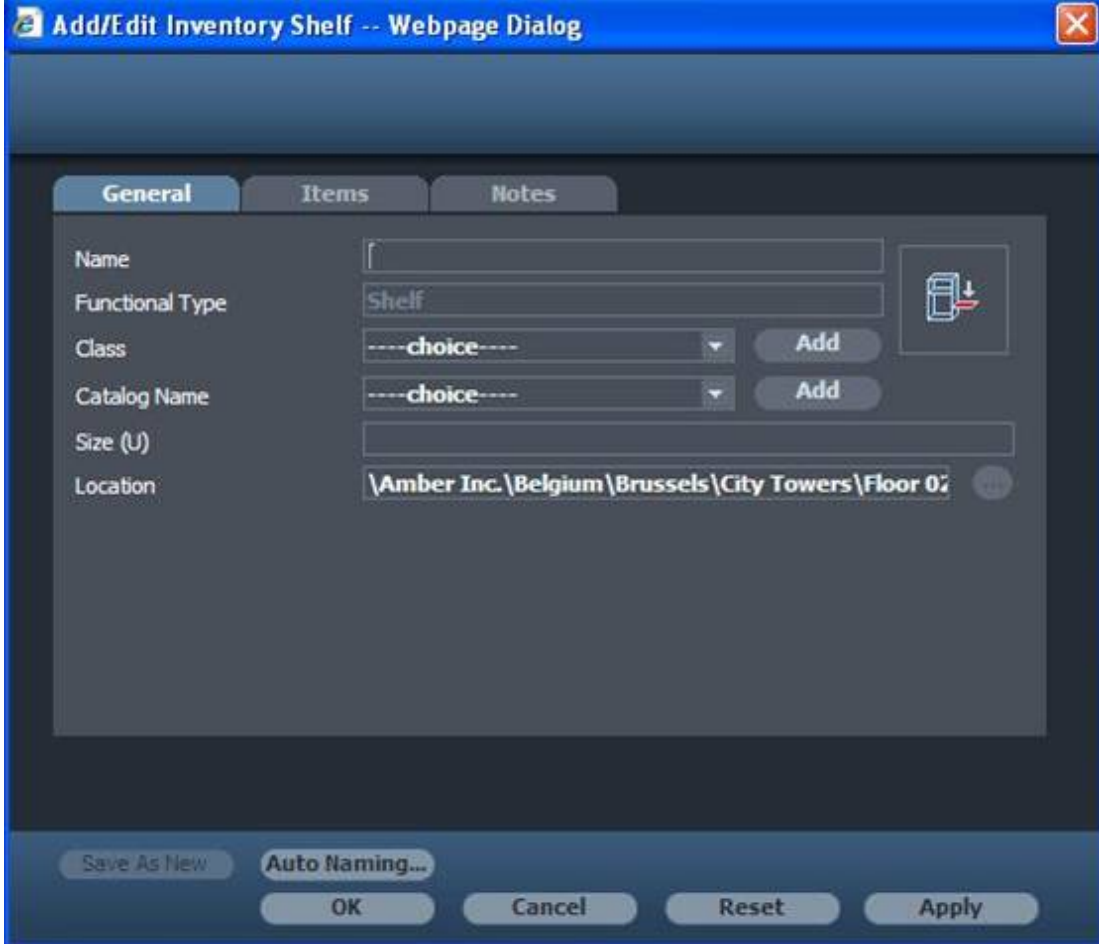




Figure 107 - Add/Edit Inventory Shelf dialog

5. Select the Catalog Name by clicking on the  button or add a new item by clicking on the Add button.
6. Type in the name of the Shelf.  
The Size of the Shelf will be added by the system, according to what is defined in the Catalog. There must be enough room in the Rack for the Shelf, otherwise the Shelf is not accepted.
7. Select the Class by clicking on the  button or add a new class by clicking on the Add button.
8. Change the location (optional). See *To change the Location of an Item*.
9. Click **OK** to proceed.

## Adding a Spacer to Location

### > To add a Spacer to Location

1. Select the Rack in the Location Tree where the Spacer is to be assigned.
2. Right-click the selected Rack.  
A drop-down list appears.

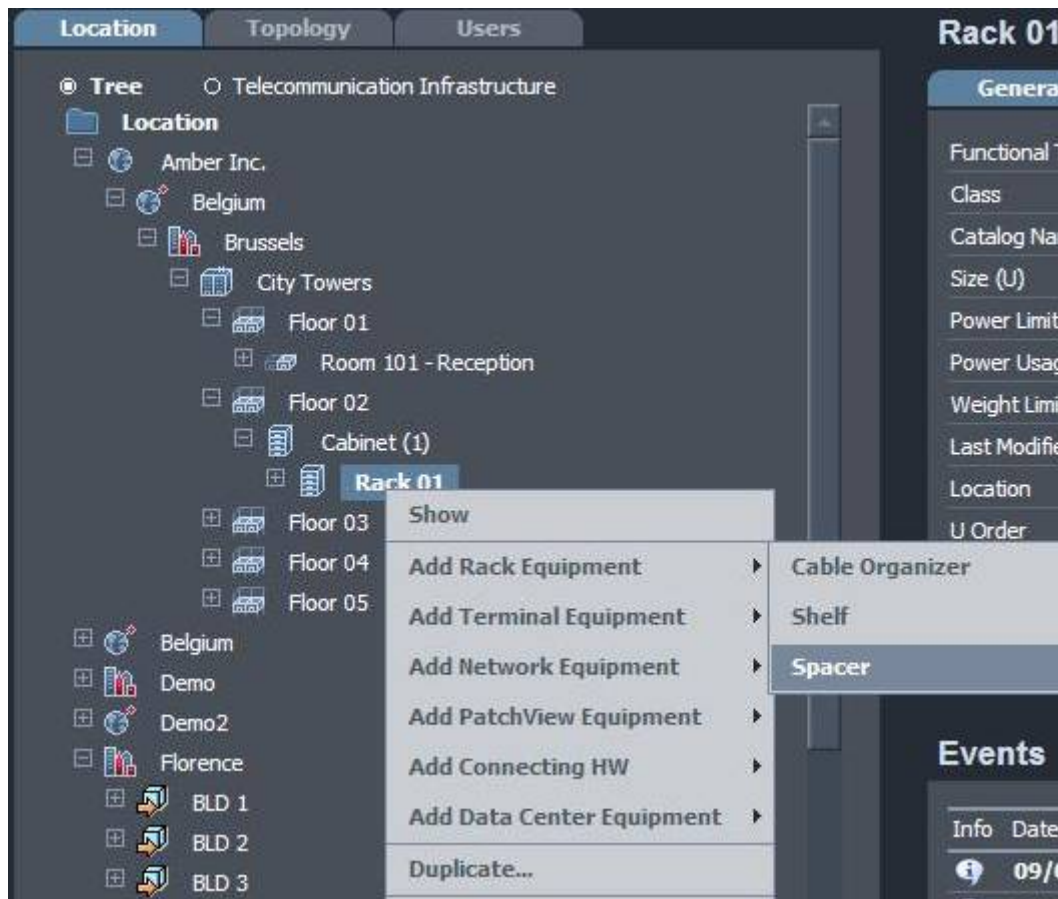


Figure 108 - Add Rack Equipment from Location

3. Select Add Rack Equipment.  
A drop-down list appears.
4. Click Spacer.  
The *Add/Edit Inventory Spacer* dialog will open.

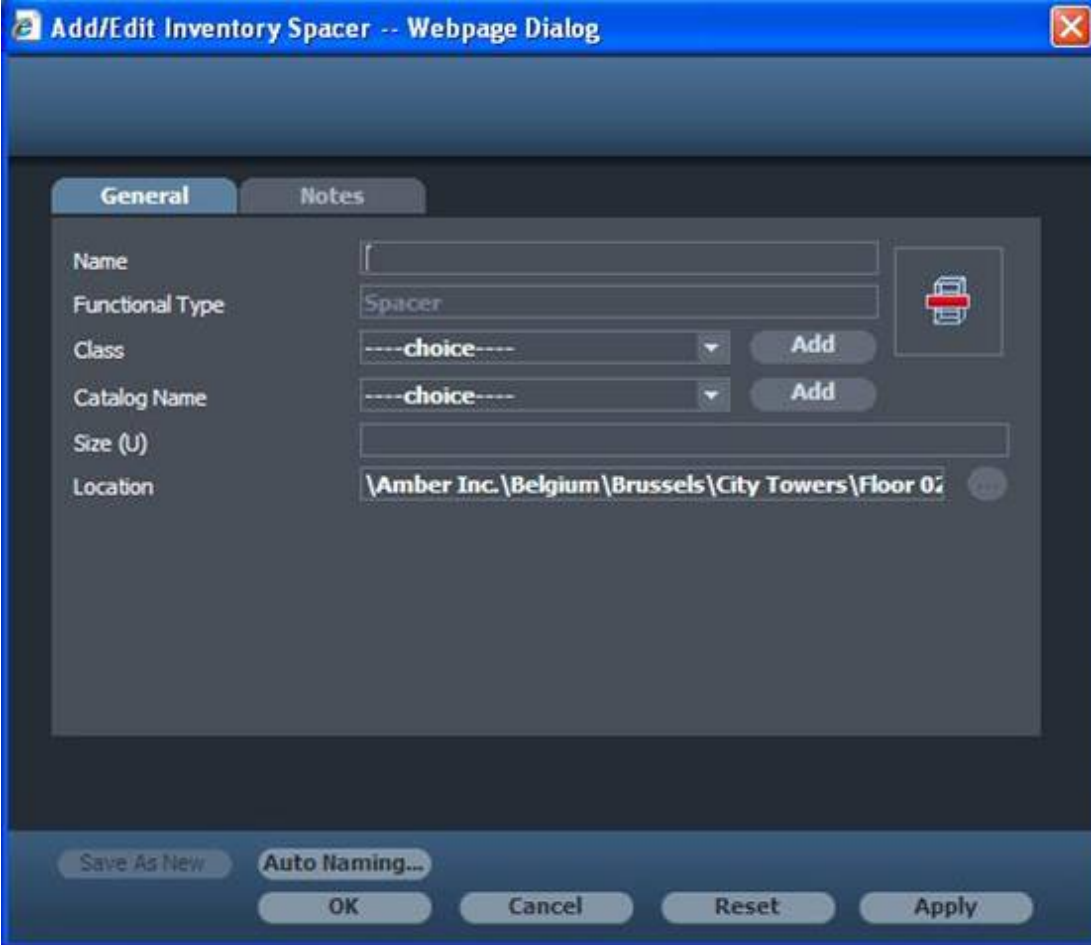




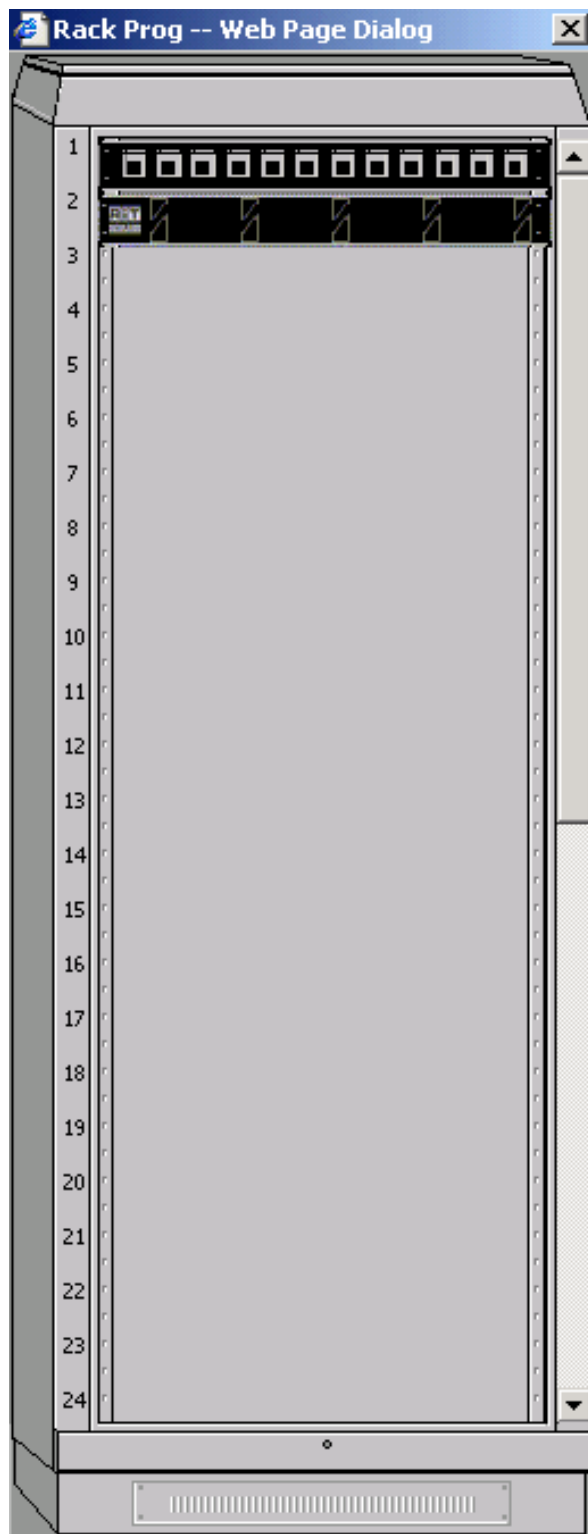
Figure 109 - Add/Edit Inventory Spacer dialog

5. Select the Catalog Name by clicking on the  button or add a new item by clicking on the Add button.
6. Type in the name of the Spacer.  
The Size of the Spacer will be added by the system, according to what is defined in the Catalog. There must be enough room in the Rack for the Spacer, otherwise the Spacer is not accepted.
7. Select the Class by clicking on the  button or add a new class by clicking on the Add button.
8. Change the location (optional). See *To change the Location of an Item*
9. Click **OK** to proceed.



## Defining Rack Contents

You can proceed to define the rack content. A rack can contain any combination of Patch Panels from the RiT Smart Patch Panels family, network equipment or scanners and stations.



*Figure 110 - Rack*



## Viewing a Rack

When viewing items in a Rack within the location tree, its actual slot position is not shown. In order to see its exact location within the Rack it is necessary to View the Rack.

### > To view a rack

1. Select and right click on the rack.
2. Select **Show Rack**.  
The following diagram will open showing the contents of the rack.
3. In the Rack drawing, double click the panel you want to enlarge.

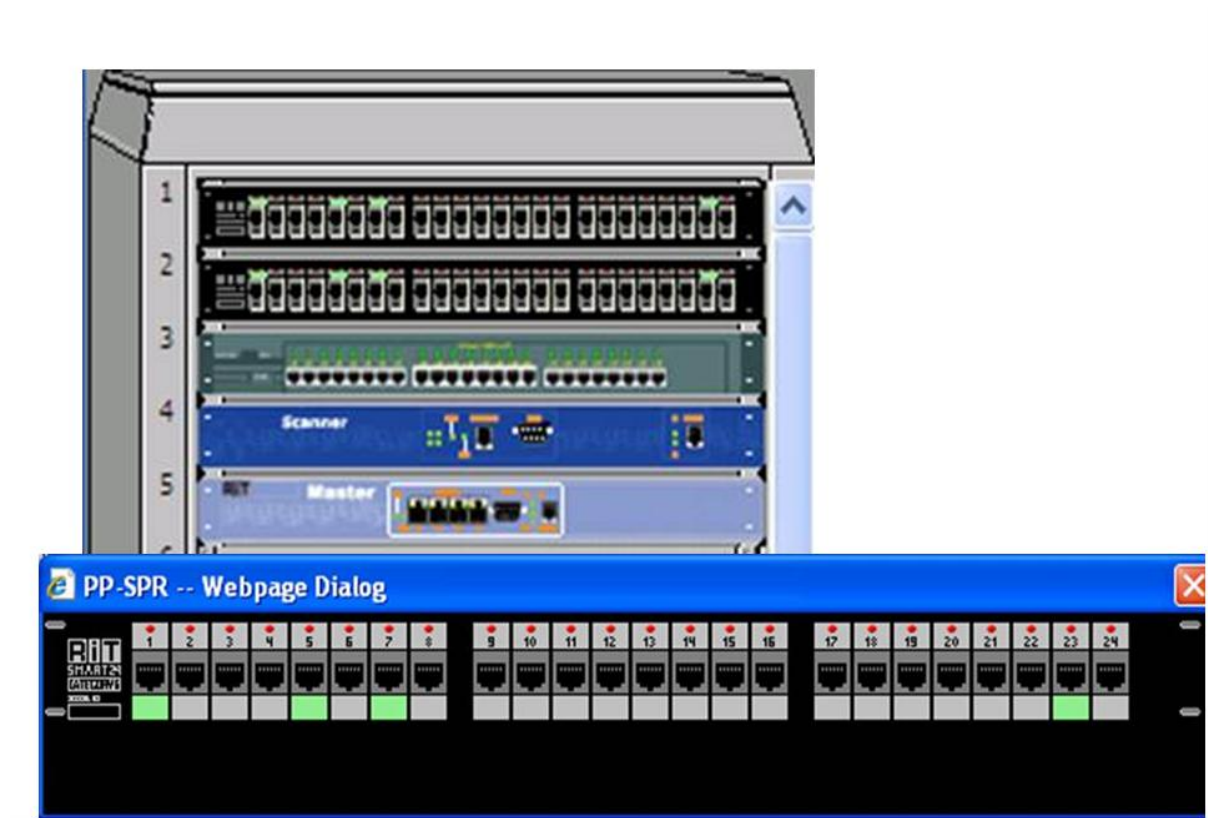


Figure 111 - Rack Contents Window


## Moving Items within a Rack

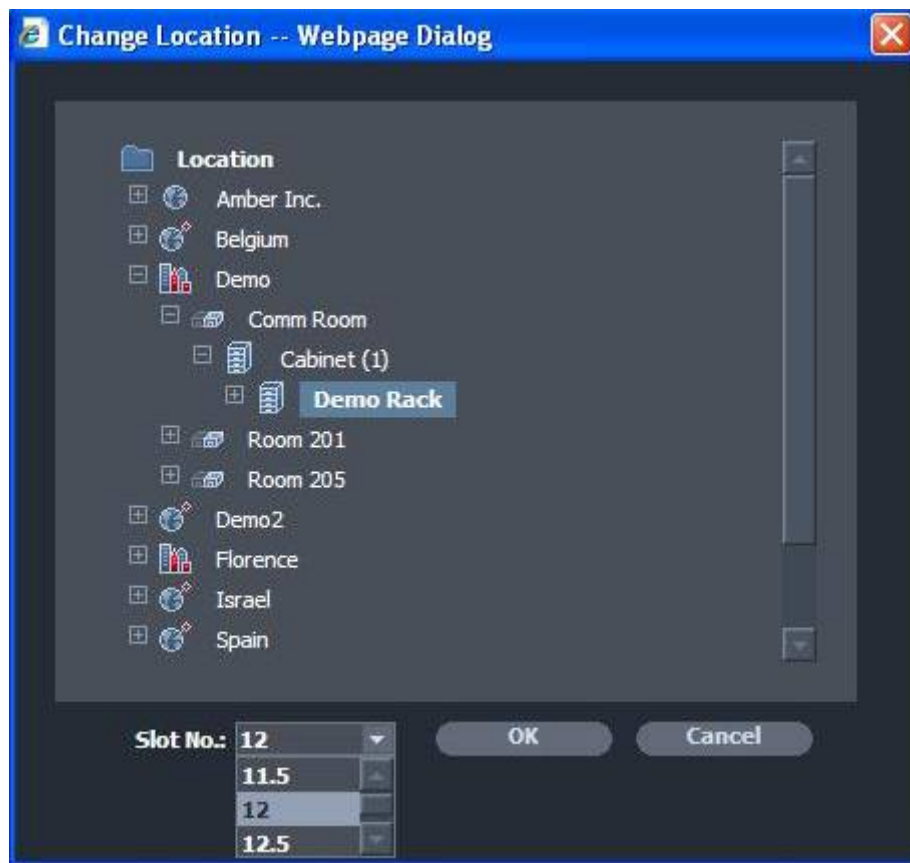
If an Item has been placed in the incorrect slot when allocated to a specific rack it can be moved to any empty slot in the Rack

There are two methods of moving items within the rack. These are:


- To drag and drop the items in the Show Rack window
- To use the *Add/Edit Inventory* dialog.

### > To move an Item in a Rack

1. Select the Item in the Rack and choose the Edit mode.  
The *Add/Edit Inventory* Item dialog opens.
2. Click on the  button to change the location.  
A dialog with the Location Tree will open.









*Figure 112 - Location Tree dialog*

3. The next available slot will be displayed in the Slot No. window. If this is not the slot required click on the  button and select another slot.
4. Click on the **OK** button.  
The Item will have changed its location in the tree. View the Rack to see the new position of the Item.  
Continue to change the position of the Items in the Rack until they are correctly located.

## Adding PatchView Equipment to Location

The PVMax Equipment necessary to operate RiT's PatchView system consists of the following components:

TYPE	ICON
Master	
Expander	
Master Expander	
Scanner	
Indicator Controller	
Security Controller	
Control Pad	

These components are vital to the running of your Enterprise and are included in the database of the Catalog during the installation process. Additional PatchView equipment cannot be added to the list nor can the existing items be edited or deleted in the Catalog. Unique names can be changed.

**Tip:**

*It is recommended to insert the Scanners and Panels in their correct order within the Rack from the beginning. However, you can change the position of the scanner/panels within the Rack according to the slots using the location feature. Refer to the List of PatchView Equipment for the order of equipment.*

## Adding a Master to Location

> **To add a Master to Location**

1. Select the Rack in the Location Tree where the Master is to be assigned.
2. Right-click the selected Rack.  
A drop-down list appears.

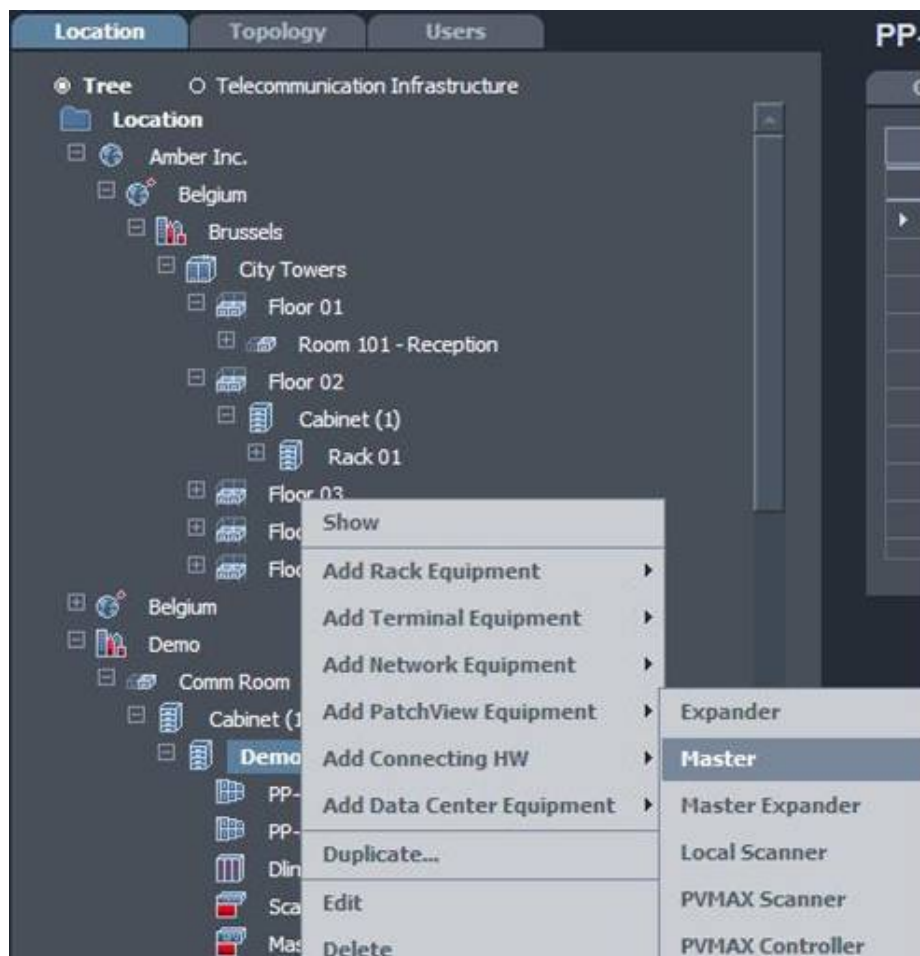


Figure 113 - Adding a Master to Location

3. Select Add PatchView Equipment and click Master.  
The *Add/Edit Inventory Master* dialog will open.

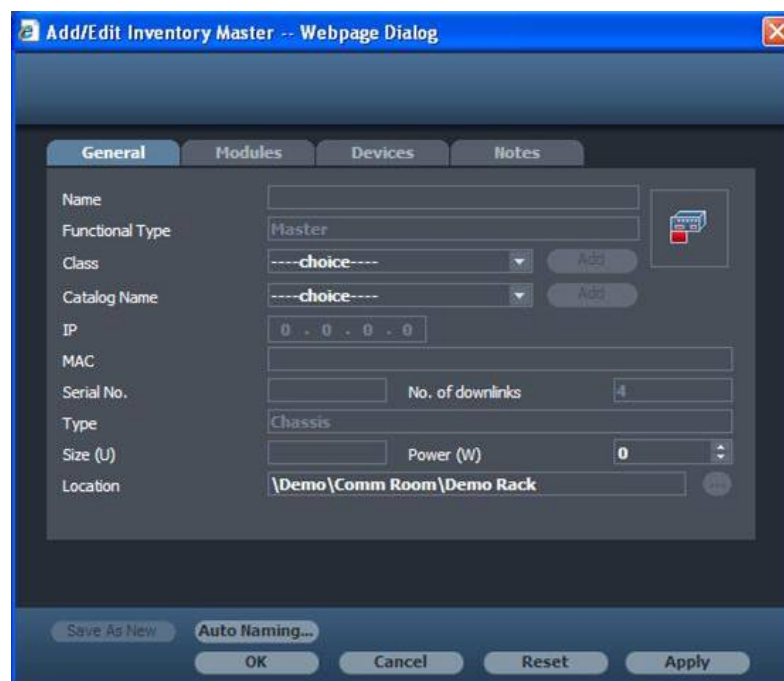


Figure 114 - Adding Add/Edit Inventory Master dialog

4. Type in the name of the Master.

The Auto Naming feature can be used. See *Auto Naming Feature*.

5. Select the Class by clicking on the button (optional).
6. Select the Catalog Name by clicking on the button.
7. Change the location (optional). See *To change the Location of an Item*.
8. Enter the IP address if known.

**Note:**

*The Ports will be filled in by the system.*

*The Panels are added automatically when they are assigned to the scanner.*

*It is advisable to leave the default Settings.*

*The MAC address will be detected automatically when the system detects the Master in the on-line mode.*

1. Click **OK** to proceed.

## Adding an Expander to Location

### > To add an Expander to Location

1. Select the Rack in the Location Tree where the Expander is to be assigned.
2. Right-click the selected Rack.

A drop-down list appears.

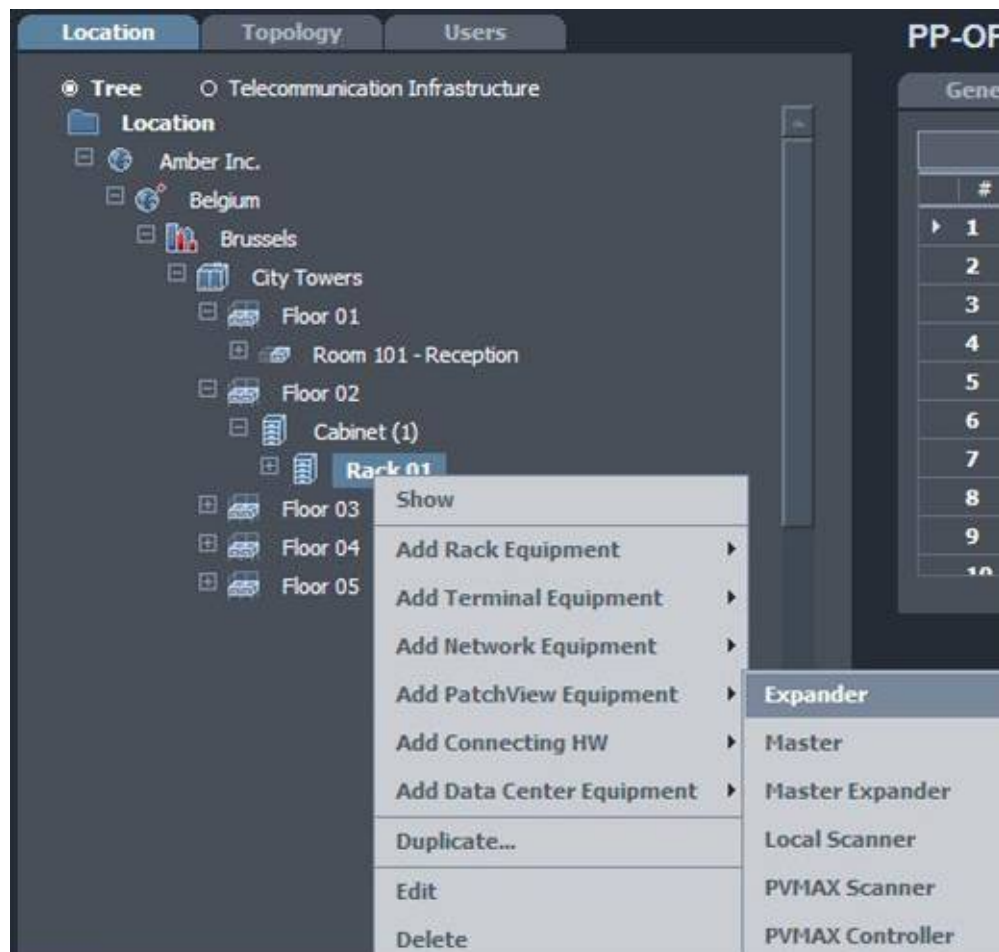


Figure 115 - Adding Add Expander to Location

3. Select Add PatchView Equipment and click Expander.  
The *Add/Edit Inventory Expander* dialog box opens.

Figure 116 - Add/Edit Inventory Expander dialog

4. Type in the name of the Expander.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
5. Select the Class by clicking on the button (optional).
6. Select the Catalog Name by clicking on the button.
7. Change the location (optional). See *To change the Location of an Item*.
8. Enter the Serial No.

**Note:**

*The Type and Size (U) fields will be filled in automatically when the Catalog Name is selected.*

9. Click **OK** to proceed.

## Adding a Master Expander to Location

### > To add a Master Expander to Location

1. Select the Rack in the Location Tree where the Master Expander is to be assigned.
2. Right-click on the selected Rack.  
A drop-down list appears.
3. Select Add PatchView. Equipment and click Master Expander.  
The *Add/Edit Inventory Master Expander* dialog will open.



Figure 117 - Add/Edit InventoryMaster Expander dialog

4. Type in the name of the Master Expander.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
5. Select the Class by clicking on the button (optional).
6. Select the Catalog Name by clicking on the button.
7. Change the location (optional). See *To change the Location of an Item*.
8. Enter the IP address if known.
9. Enter the Serial No.

**Note:**

*The Type and Size (U) fields will be filled in automatically when the Catalog Name is selected.*

10. Click **OK** to proceed.

## Adding a PVMax Scanner/Mini Scanner to Location

### > To add a PVMax Scanner to Location

1. Select the Rack in the Location Tree where the PVMax Scanner is to be assigned.
2. Right-click on the selected Rack. A drop-down list appears.
3. Select Add PatchView Equipment and click PVMax Scanner.
4. The *Add/Edit Inventory PVMax Scanner* dialog box opens.



Figure 118 - Add/Edit Inventory PVMax Scanner dialog

5. Type in the name of the PVMax Scanner.
6. The Auto Naming feature can be used. See Auto Naming Feature.
7. Select the Class by clicking on the button (optional).
8. Select the Catalog Name by clicking on the button.
9. Change the location (optional). See To change the Location of an Item.
10. Enter the Serial No.

**Note:**

*The Type and Size (U) fields will be filled in automatically when the Catalog Name is selected.*

The Panels will be added automatically when they are assigned to their scanner in the *Topology*.

11. Click **OK** to proceed.

## Adding a Local Scanner

The Local Scanner is a single PV4E device that functions as a PV4E Master and a PV4E Scanner combined in one unit.

PVMax Local Scanner is a stand-alone device that manages the physical layer network. It is connected directly to the network and is able to monitor up to 144 ports (up to 6 panels).

The Local Scanner is recognized by the PV4E system and is then presented in the User Interface as an integrated unit, very much like the Master-Expander unit. The essence of the Master and Scanner functionality remains the same and requires no major changes.

The PV4E server communicates with the PV4E Master via standard 100BaseT Ethernet.

When the Master is a part of a Local Scanner, the server recognizes it immediately by interpreting a bit in the Master MIB and concludes that the single Scanner connected to it is actually a part of a single unit constructed of the Master and the Scanner.

Information about the Master and Scanner as being a part of a single Local Scanner is recorded in the PV4E database, so that the devices can be described properly in the User Interface and handled properly by the PVMax Server.

## Detecting a Master/Local Scanner in *Topology*

To detect a Master/Local scanner from the topology, do the following:

1. In the *Maintenance* screen, click the **Topology** tab.
2. Right-mouse click **PVMax Topology** > **Detect Master**.

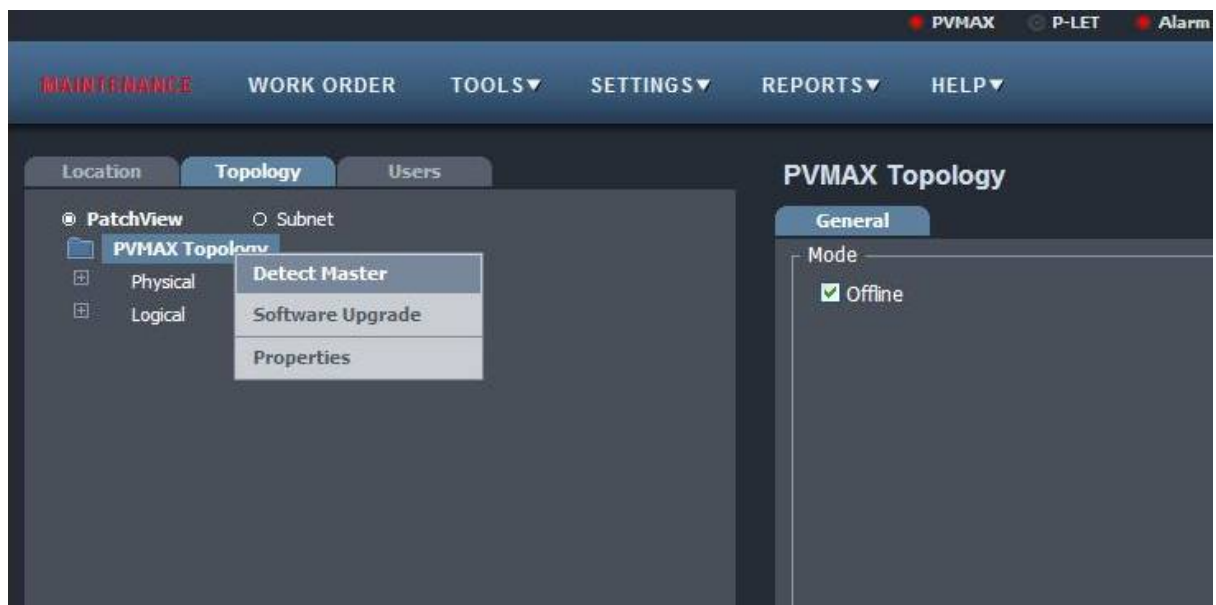


Figure 119 - PV4E Topology Tab

3. The following *Auto Detect PVMax Master* window opens:

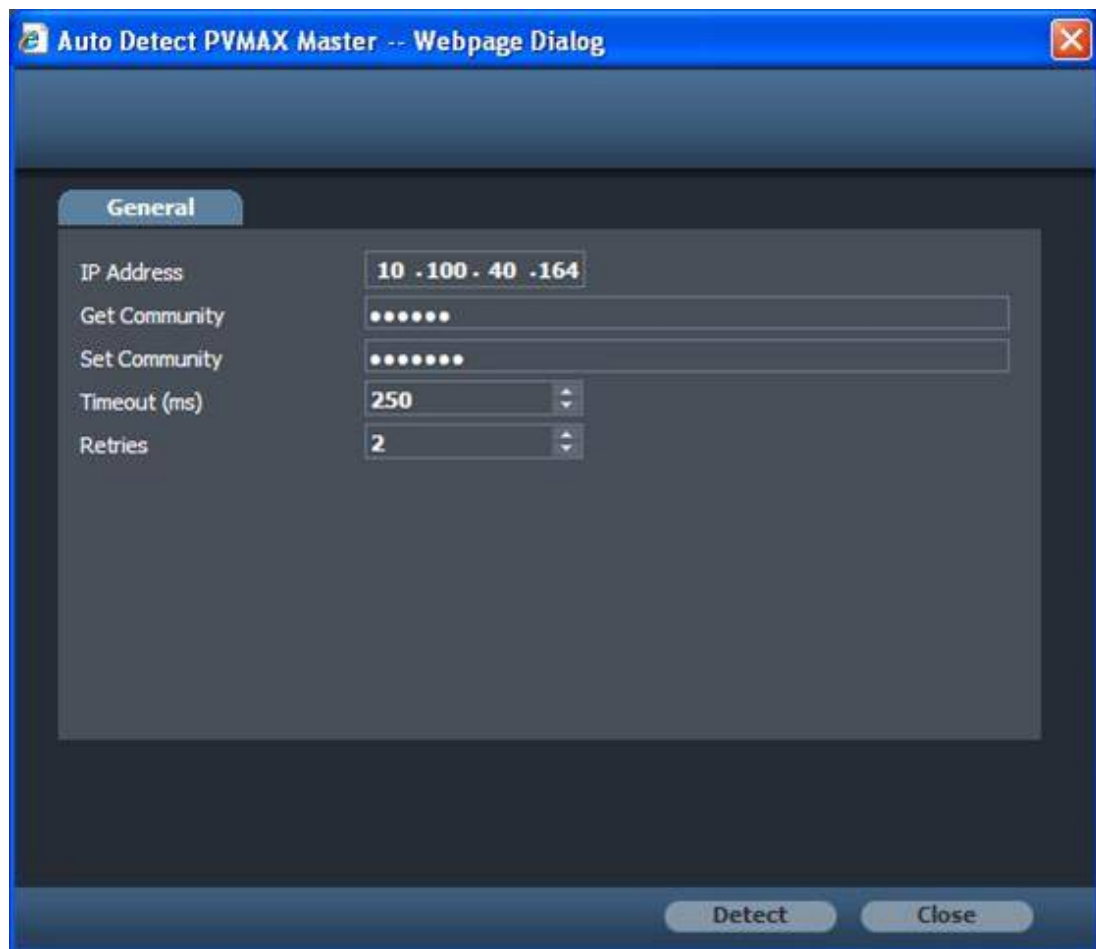
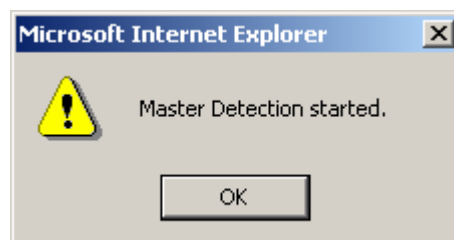



Figure 120 - Auto Detect PVMax Master

4. Enter IP address of the Local Scanner. Click **Detect**. The following message appears:



5. Click **OK**.
6. Click  **Refresh** at the top of the PV4E screen.
7. The Scanner appears both in the physical and logical trees as a ghost with a question mark in the *Topology* screen.

## Assigning

To insert the Local scanner as an item in the inventory, perform the following steps:

1. Stand on the ghost item and right-mouse click. Select **Insert Local Scanner/s** from the context menu.
2. The *Add New PVMax Local Scanner/s* window opens
3. Select the Ghost name you want to assign to the inventory.

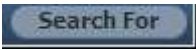
Catalog Name: Click the arrow in the drop-down menu and select **Local Scanner**.

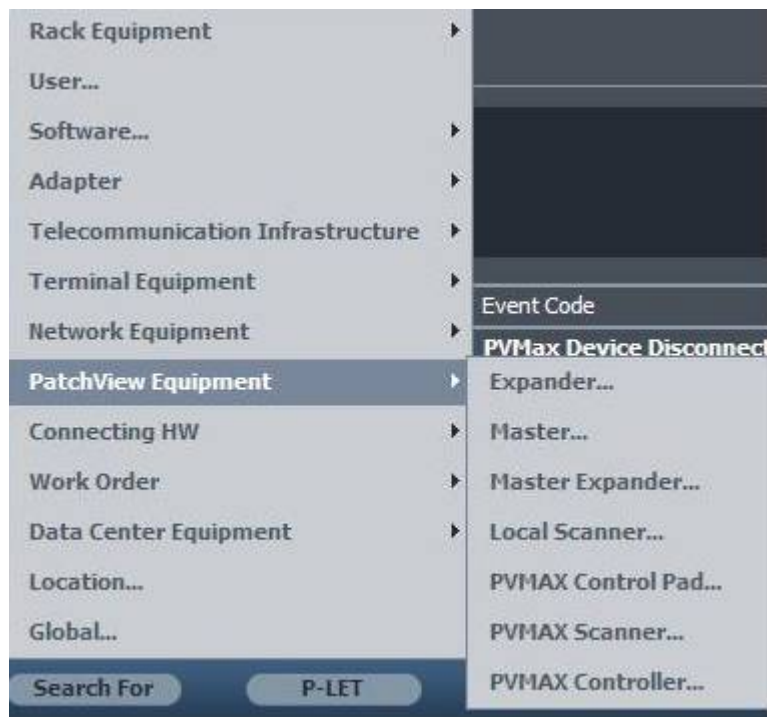
Location: Click  to change location.

4. Select location from the location tree and click **OK**.
5. The Scanner has been added to the inventory.

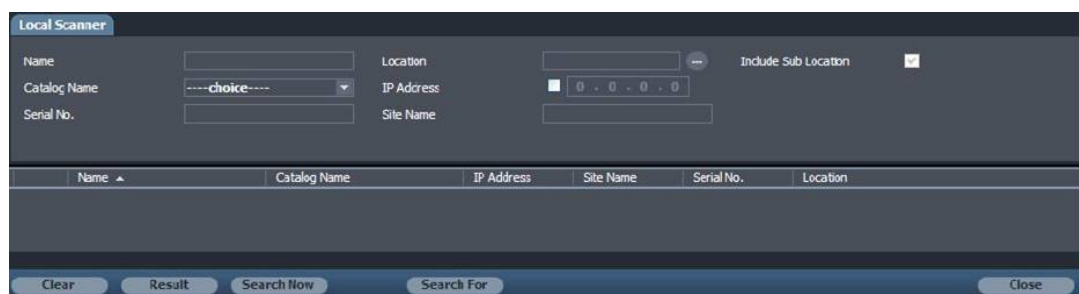
## Selecting a Search Frame

To perform a search, do the following:

1. Click  at the foot of the PV4E screen. The following context menu opens:



2. Select the item you wish to search for. The following screen opens:


 A screenshot of the 'Local Scanner' search form. It has a title bar 'Local Scanner'. Below it are input fields for 'Name', 'Catalog Name' (with a dropdown arrow), 'Serial No.', 'Location' (with a location icon), 'IP Address' (with a checkbox and '0.0.0.0'), and 'Site Name'. There is also a checkbox for 'Include Sub Location'. Below the input fields is a table with columns: Name, Catalog Name, IP Address, Site Name, Serial No., and Location. At the bottom of the form are buttons: 'Clear', 'Result', 'Search Now', 'Search For', and 'Close'.

3. Enter the Name, Location, Catalog Name and Serial No. and click **Search Now**.

**Note:**

*The search form does not include Site name criteria.*

## Adding PVMax Security and Indicator Controllers

### PVMax Security Controller

The PVMax Security Controller enables control of various sensors and remote-controlled devices from the PatchView Management Station. Sensors such as temperature, humidity, floods etc., and remote devices such as rack indicators, door locks, door switches, fans, can be physically connected to the PatchView system using the PVMax Security Controller.

One PVMax Security Controller supports up to 32 external devices and sensors as described below:

- 8 dry contact ports– these ports are used as an electric switch which can open/close a circuit. The ports support up to 3 amp load each.
- 16 I/O ports - Digital ports that support input and output. This port sends an event to the management system if a circuit was opened or closed. Different sensors can be connected to these ports, when for example; the temperature exceeds a threshold, the electric circuit closes and is acknowledged by the controller.
- 8 output ports- These ports activate any device which meets the specifications. The Rack Indicator can be connected and controlled from this port. A port output is 12 volts limitation of 60 m Amp.

### Supported Devices

Door – The PVMax Security Controller has the ability to send a command to open or close a door and has the ability to receive an indicator from the door as the door's circuit opens or closes.

Sensor – The PVMax Security Controller has the ability to receive an indication from the device as the device's circuit opens or closes.

Active Device – PVMax Security Controller has the ability to send a command to open or close the devices circuit.

### General

- The PVMax Security Controller, as the rest of the PVMax system, uses secure communication in order to avoid unauthorized access.
- The PVMax Security Controller is 1U in height.
- The PVMax Security Controller has a built-in LED matrix which provides a real time indication of the ports' activity.

### PVMax Indicator Controller

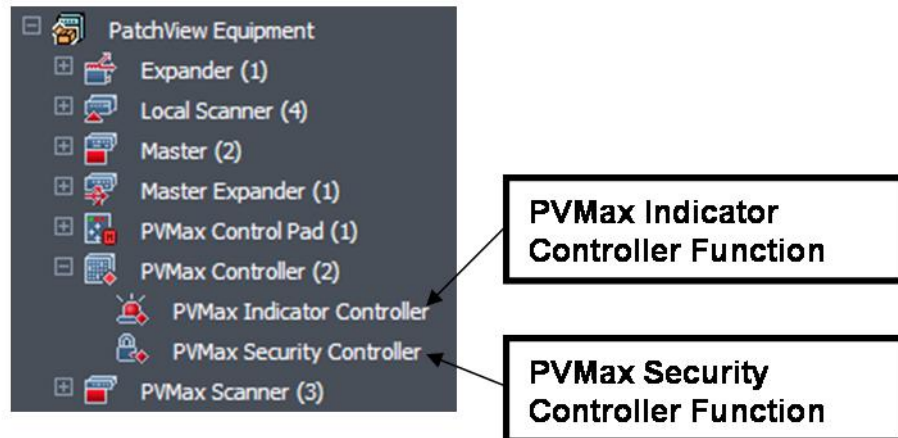
The PVMax Indicator Controller is a subset of the PVMax Security Controller and works independently when connected to a PVMax Master, Expander or Master Expander. It is used solely to activate the Rack Indicators.

The Indicator Controller supports up to 8 Rack Indicators.

## Catalog

The following Controller functional types have been added to the PatchView Equipment tree:

- PVMax Indicator Controller
- PVMax Security Controller



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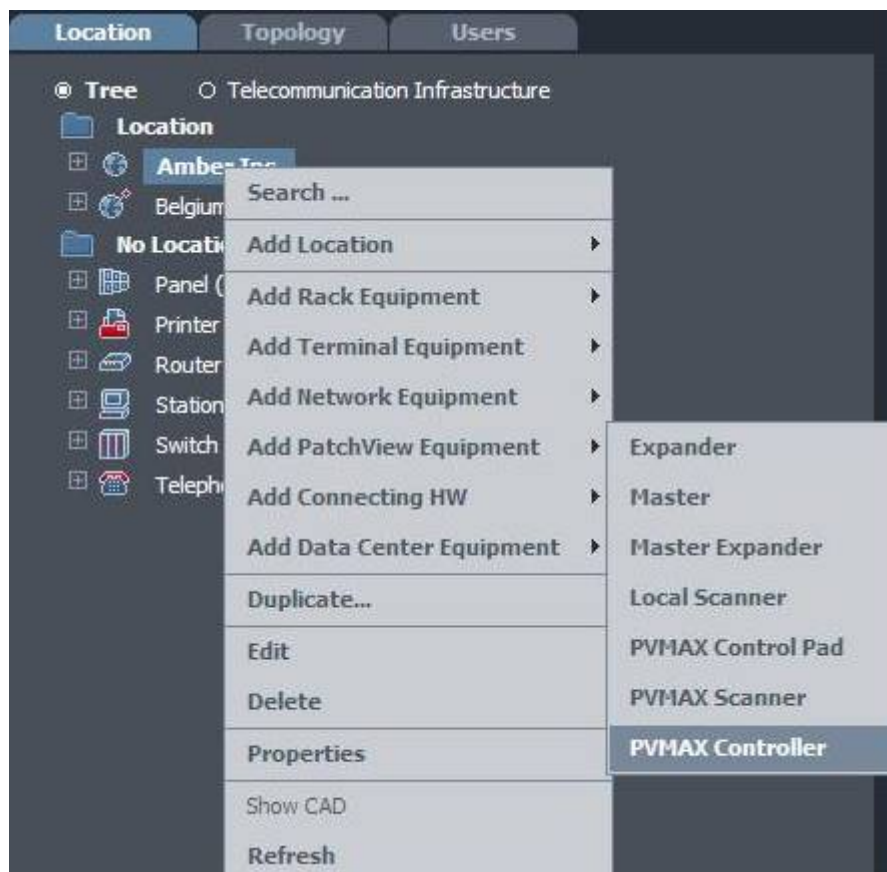
## Adding and Editing PVMax Controllers

The following section explains how to add a PVMax Controller to the inventory and also how to edit a PVMax Controller.

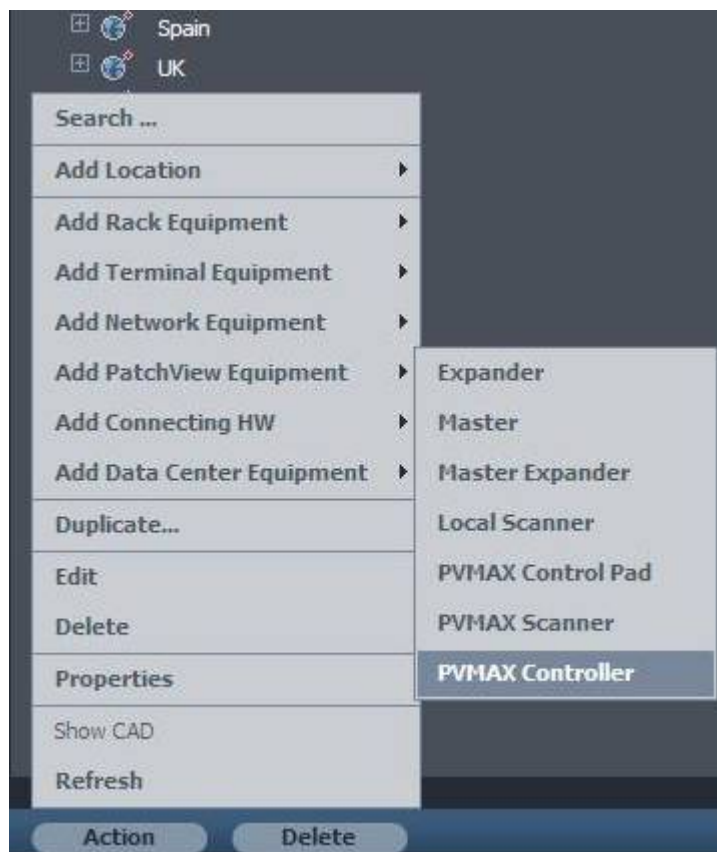
### > Add

To insert a new PVMax Controller to the inventory:

1. Right-click on a specific location from the Location tree or right-click on No Location. Select **Add PatchView Equipment > PVMax Controller**.



The **Action** button can also be used:



2. The following *Add/Edit Inventory* screen opens:



Figure 121 Add/Edit Inventory Rack Screen

3. Type the name of the new Controller in the Name field.
4. In the Catalog Name field select either the **PVMAX Indicator Controller** or **PVMAX Security Controller** option and click **OK**.

The PVMAX Controller has been added.

**Note:**

*The PVMAX **Indicator Controller** screen consists of three tabs. The **PVMAX Security Controller** screen consists of five. Once the Controller is selected from the Catalog Name, the relevant screen and associated tabs appear.*



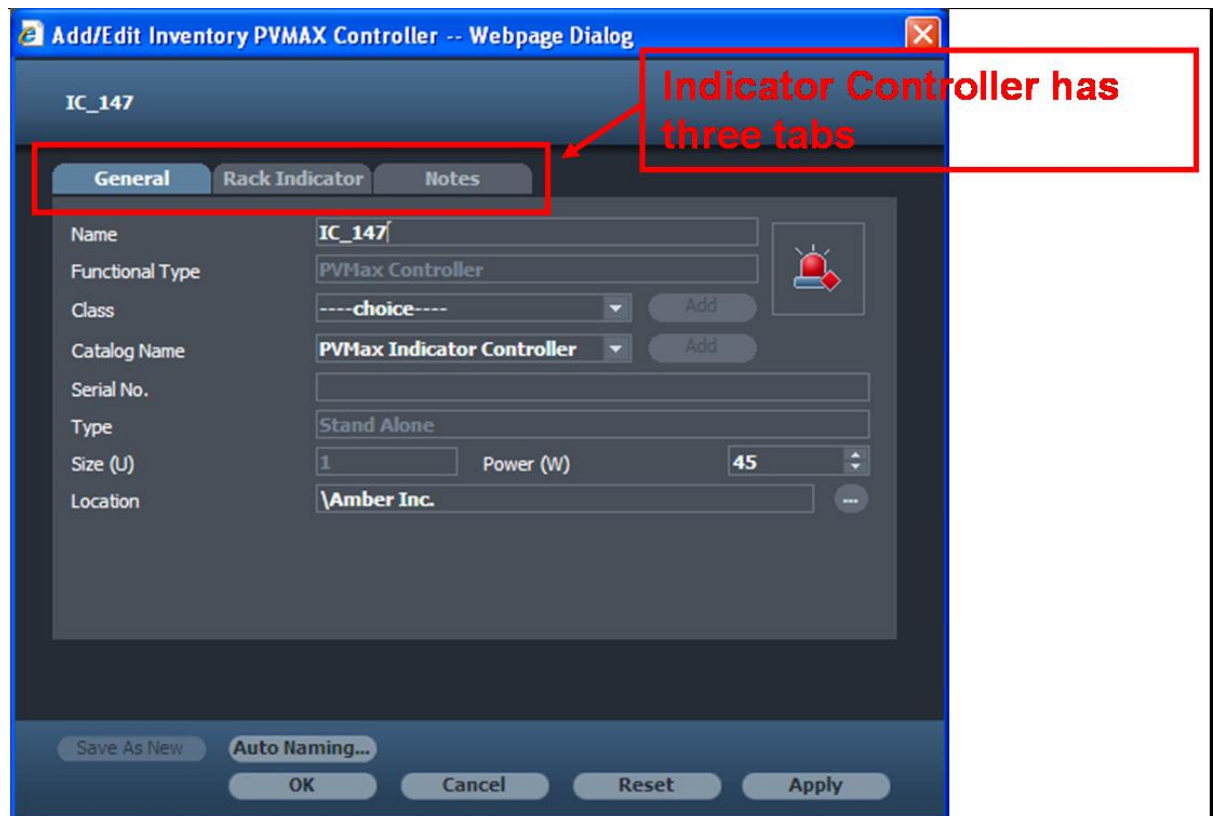


Figure 122 Add/Edit Inventory Rack Screen (Indicator Controller)

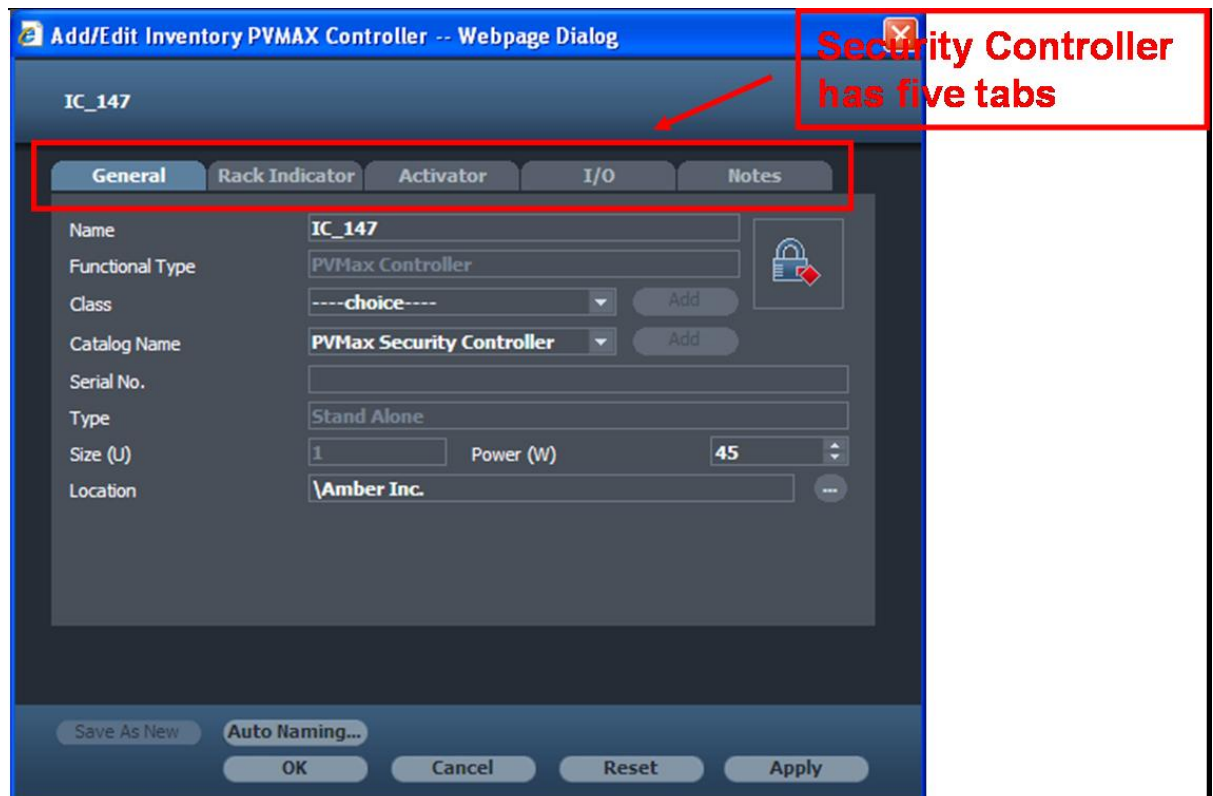
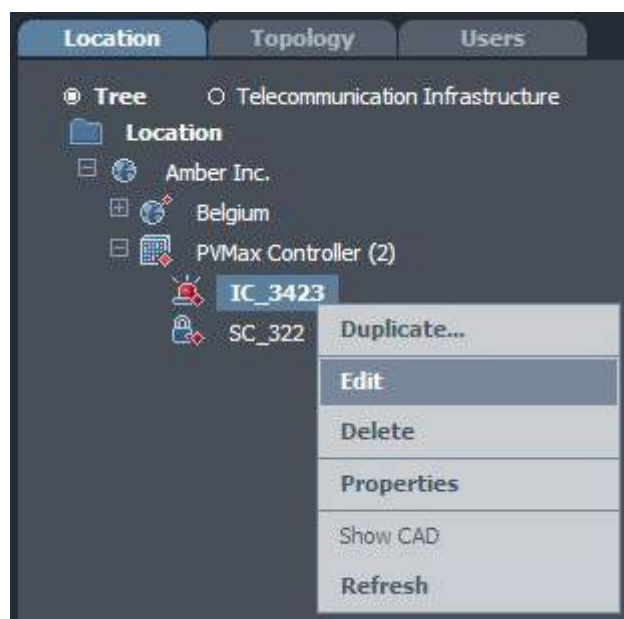


Figure 123 Add/Edit Inventory Rack Screen (Security Controller)

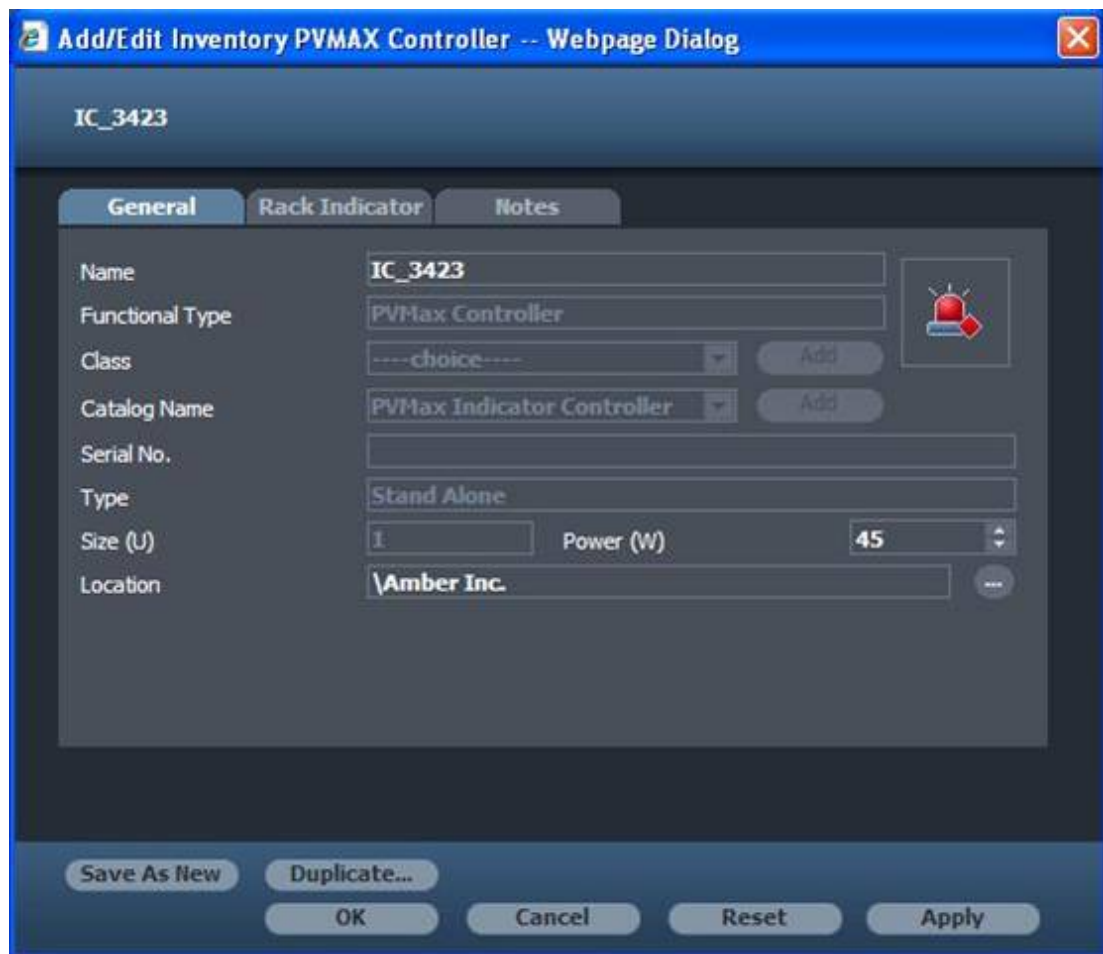
#### > Edit

To edit an existing PVMax Indicator or Security Controller:

1. From the Location tree, select and right-click either the Indicator/Security Controller. The from context menu, select **Edit**.



2. The following *Add/Edit Inventory PVMax Controller* screen opens. The Name and Location field can be edited. After any modifications have been made, click **OK**.



**Add/Edit Inventory PVMAX Controller -- Webpage Dialog**

**IC\_3423**

**General** | Rack Indicator | Notes

Name: **IC\_3423**

Functional Type: **PVMax Controller**

Class: **----choice----** **Add**

Catalog Name: **PVMax Indicator Controller** **Add**

Serial No.:

Type: **Stand Alone**

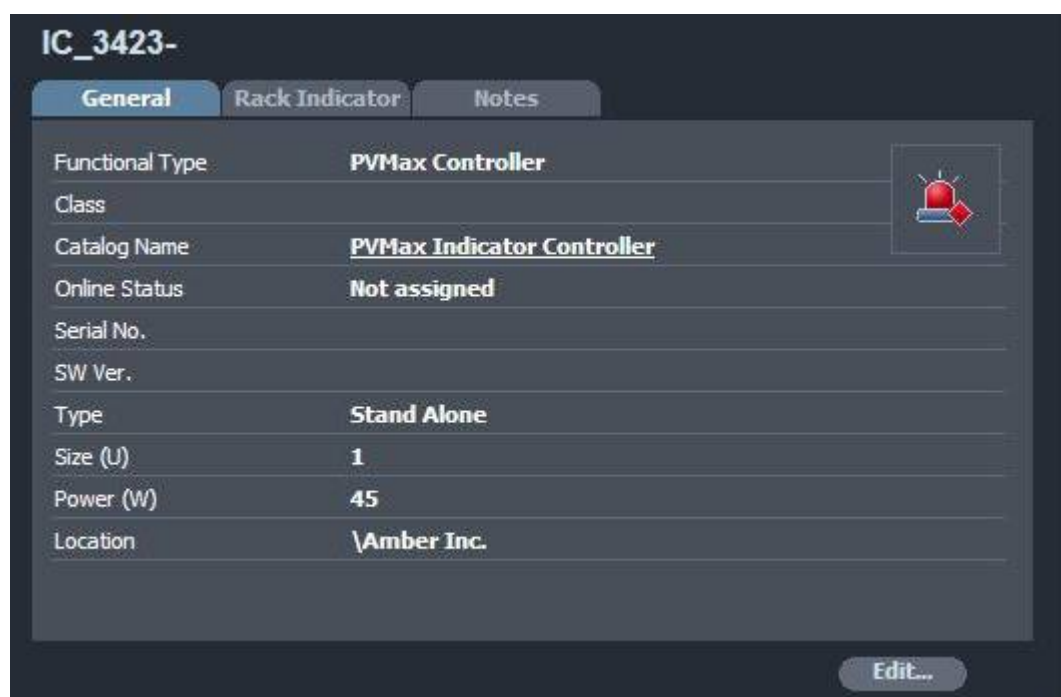
Size (U): **1** Power (W): **45**

Location: **\Amber Inc.**

**Save As New** **Duplicate...** **OK** **Cancel** **Reset** **Apply**

Figure 124 Add/Edit Inventory Rack Screen

- The information has been updated in the Information pane.



**IC\_3423-**

**General** | Rack Indicator | Notes

Functional Type: **PVMax Controller**

Class:

Catalog Name: **PVMax Indicator Controller**

Online Status: **Not assigned**

Serial No.:

SW Ver.:

Type: **Stand Alone**

Size (U): **1**

Power (W): **45**

Location: **\Amber Inc.**

**Edit...**

Figure 125 General Tab - Information Pane

## PVMax Security Controller Functionality

### Auto Recognize

The PV4E Server is responsible for automatically recognizing the PVMax devices. During this phase it will automatically recognize the PVMax Security Controller and insert it in the PVMax *Topology* as a ghost.

### View (ghost)

The PVMax Security Controller ghost has only one tab in its data properties in the GUI. The initial name of the device is its unique serial number and is shown in the *Topology* tab.

## Inserting a Ghost (adding it to the inventory)

Inserting a PVMax Security Controller ghost is the same as with any other PVMax device:

> **To insert a PVMax Security Controller Ghost:**

1. Right-click on the PVMax Security Controller ghost from the System View *Topology* tree.
2. From the context menu, select Insert PVMax Security Controller. The **Add New** screen opens.
3. Specify the name in the Catalog Name field in the pull-down menu.
4. Specify the name in the Catalog Name field in the pull-down menu.
5. Specify the location in the location field.
6. Specify the inventory name in the Inventory field.

**Note:**

*The Auto Naming button is used to create two or more Security Controller devices.*

7. Click **OK**

The Security Controller has been added to the inventory.

## Assign, Replace and Remove a Security Controller

> **Assign an Existing PVMax Security Controller**

Assigning a PVMax Security Controller ghost is the same as with any other PVMax device.

The multi select function can be used to assign or insert a Security Controller.

- To multi select a group, hold down the Alt key and select with the mouse.
- To select several that are not in succession. Hold down the Ctrl key and select with mouse.

> **To Assign a PVMax Security Controller ghost:**

1. Right-click on a PVMax Security Controller ghost from the System View *Topology* tree in the Physical branch context menu.
2. Select **Assign existing PVMax Security Controller** option.

3. The *Assigned* screen opens.
4. Select the Security Controller to be assigned.
5. Click **Assign** and **OK**.
6. The Security Controller is now related to the previously created Security Controller in the inventory.

**Note:**

*The status of the ports is saved within the inventory. If the user relates an inventory that contains changes from the default values, these changes will also apply to the ghost. The inventory status is more predominate in the system than the online status.*

Replacing a PVMax Security Controller is the same as with any other PVMax device:

**To Replace a PVMax Security Controller:**

1. Right-click on a PVMax Security Controller from the System View *Topology* tree.
2. Select *Replace* from the context menu.
3. The *Replace Device* screen opens.

The Replace function of a PVMax Security Controller is the same as replacing a PVMax Expander.

The new Security Controller will replace the old one in the PVMax *Topology* and place it as a ghost that needs to be assigned to the Security Controller in the inventory. There is no need to change the commands and I/O settings, as they belong to the inventory.

After the Replace function has been performed, the PVMax Server synchronizes the PVMax Security Controller with the database, i.e., setting the ports to ON or OFF, updating the I/O ports mask, downloading the configuration file and sending scheduled pulses.

**Remove**

Removing an assigned PVMax Security Controller is the same as with any other PVMax device.

> **To Remove a PVMax Security Controller**

Right-click on a PVMax Security Controller that is related to an inventory from the System View *Topology* tree in the Physical branch context menu. Select **Remove** from the context menu.

Selecting **OK** un-assigns the Security Controller in the PVMax topology from the Inventory and changes its status to a ghost. It does not delete it from Inventory. The PVMax Server sends the PVMax Security Controller a command to reset to its factory defaults.

## Search

The Search function can be used to search for a PVMax Security Controller. This option is added to the **Search For** menu in the PatchView Equipment branch in the PVMax Controller item.

The PVMax Security Controller has additional criteria fields in addition to the general fields that appear for every PatchView Equipment search.

The additional fields are:



- Device
- Device location
- Include sub location check box for the device location
- Include ports check box

The screenshot shows the PVMAX Controller search interface. It features a dark-themed layout with a search bar at the top. The search bar contains several input fields: 'Name', 'Catalog Name' (with a dropdown menu showing 'choice'), 'Appliance', 'Location', 'Serial No.', and 'Appliance Location'. To the right of these fields are two checkboxes: 'Include Sub Location' (checked) and 'Include Ports' (checked). Below the search bar is a table with the following columns: 'Name', 'Catalog Name', 'Location', 'Port #', 'Port Type', 'Appliance', and 'Appliance Location'. At the bottom of the interface are four buttons: 'Clear', 'Result', 'Search Now', and 'Search For'.

The results of the Search columns depend on whether the Include Ports box is checked.

➤ Include Ports box not checked

The following screen is displayed:

	Name ▲	Catalog Name	Location
▶ 	<u>IC 3423-</u>	PVMax Indicator Controller	\Amber Inc.
	<u>SC 322</u>	PVMax Security Controller	\Amber Inc.

1
(
Total Records: 2
)

- **Include Ports box checked**

The following screen is displayed:

	Name	Catalog Name	Location	Port #	Port Type	Appliance	Appliance Location
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	1	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	2	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	3	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	4	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	5	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	6	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	7	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	8	Rack Indicator		
	IC_3423	PVHax Indicator Controlle	\Amber Inc.	9	Rack Indicator		

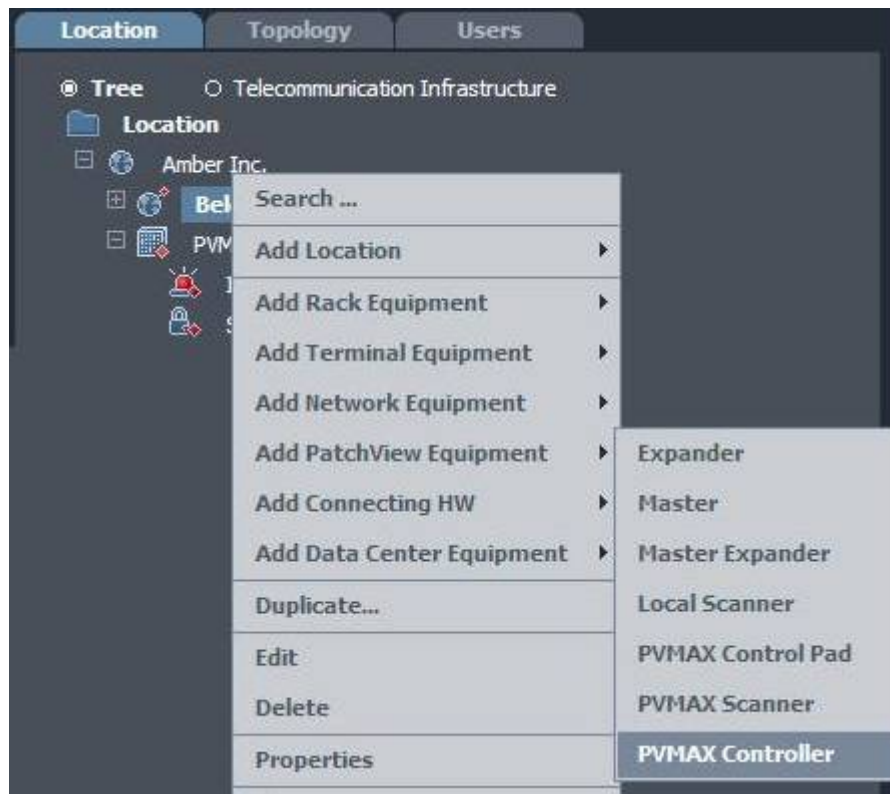
(Total Records: 40)

## Adding a Security Controller to the Inventory

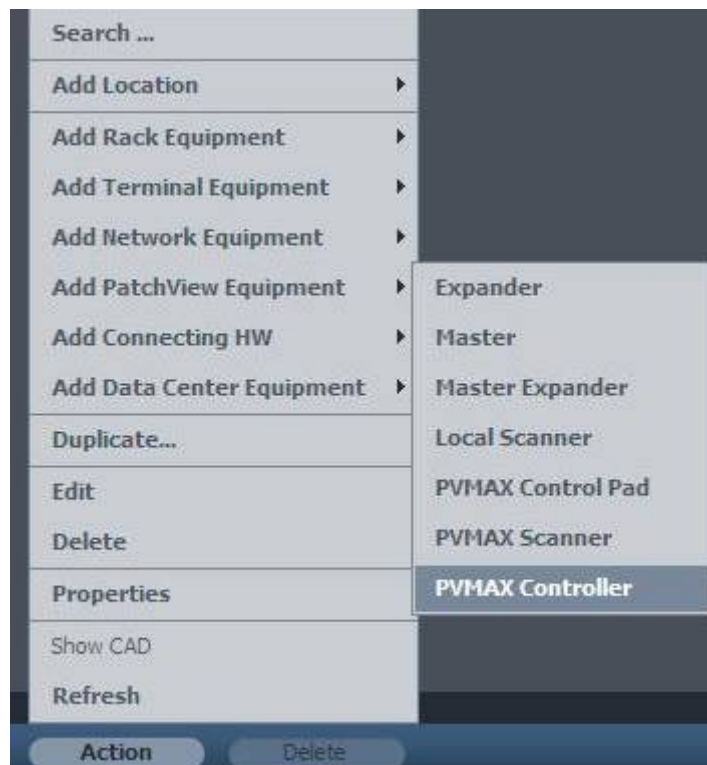
> **Add**

### To Add a new PVMax Security Controller:

1. Right-click on a specific location from the Location tree or right-click on the No Location field.
2. Select **Add PatchView Equipment** in the context menu.
3. Select **PVMax Controller**.



The **Action** button can be used as an alternative to the right-click. See the following screen:



4. Select **PVMAX Security Controller** in the Catalog Name context menu.
5. The Rack Indicator, Activator, and I/O tabs can also be viewed. Click **OK**.



## Edit an Existing Indicator Controller

1. Select the Security Controller from the inventory and Click **Edit**.

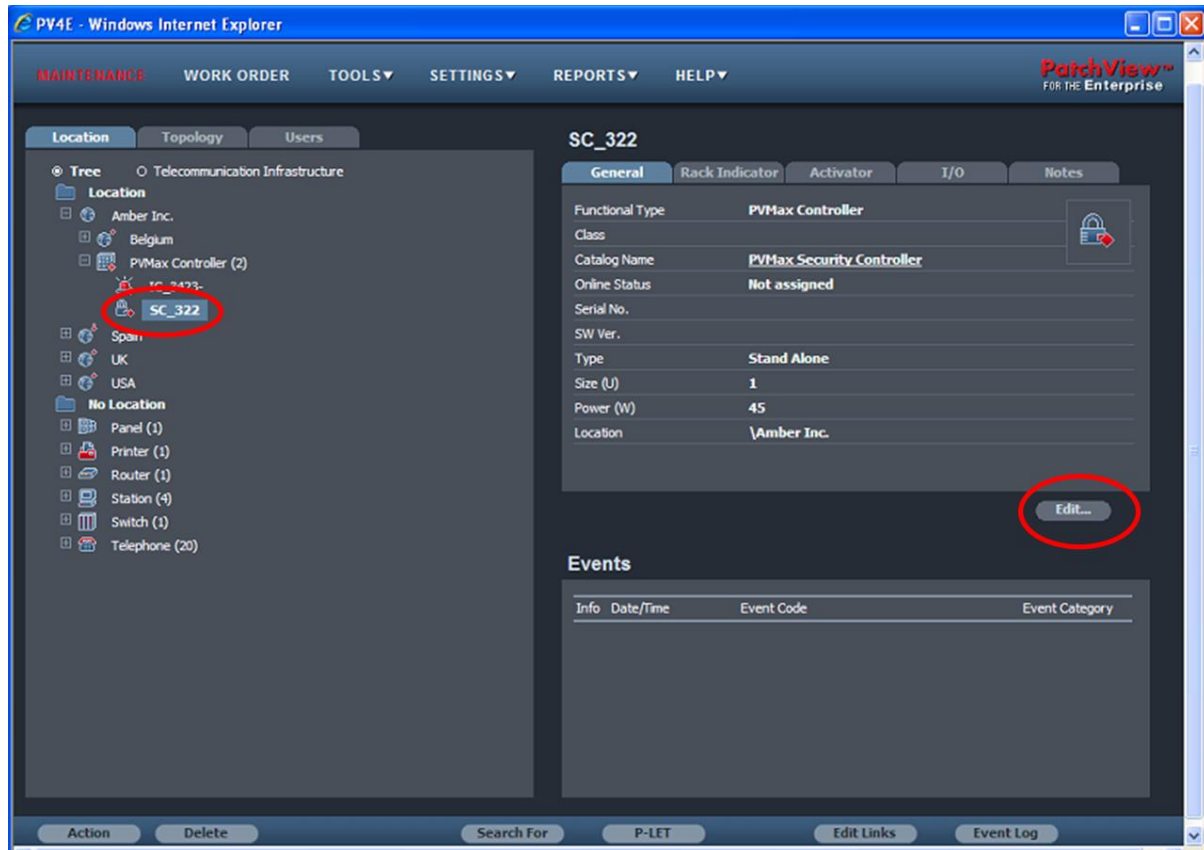


Figure 126 System View Maintenance Screen – Location Tab

> **Alternative options:**

1. Right-click on the selected Security Controller from the Location tree to view the context menu.

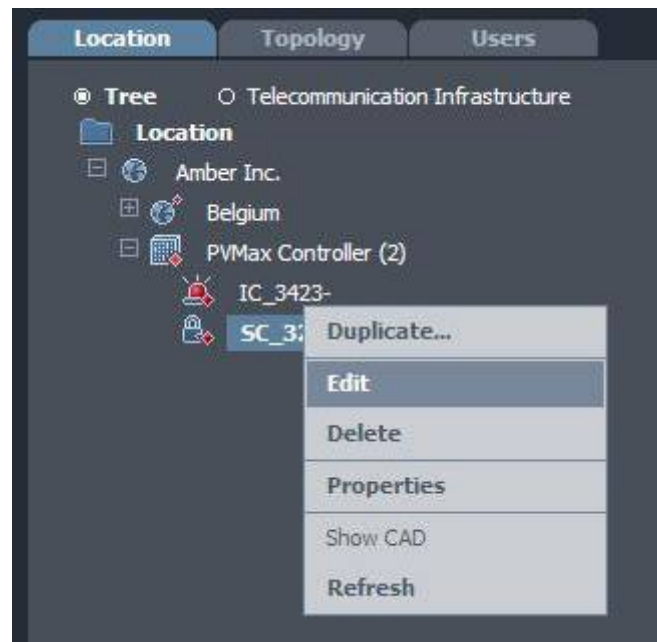


Figure 127 System View Maintenance Screen – Location Tab

2. Click **Action** to view the context menu:

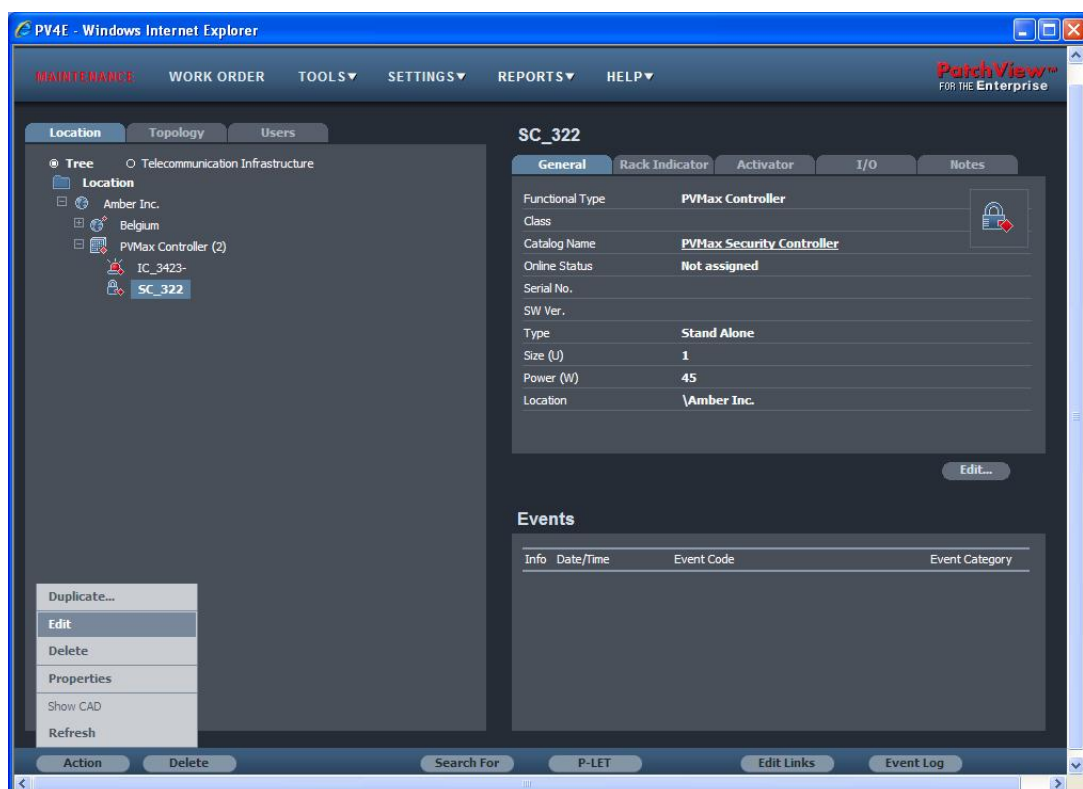


Figure 128 System View Maintenance Screen – Location Tab

3. The Add/Edit PVMax Security Controller screen opens.
4. The Add/Edit PVMax Security Controller screen contains five tabs:

➤ **General tab**

The following tabs in the *Add/Edit Inventory* screen can be edited:

**Add/Edit Inventory PVMAX Controller -- Webpage Dialog**

SC\_322

**General** | Rack Indicator | Activator | I/O | Notes

Name: SC\_322

Functional Type: PVMax Controller

Class: ----choice---- Add

Catalog Name: PVMax Security Controller Add

Serial No.:

Type: Stand Alone

Size (U): 1 Power (W): 45

Location: \Amber Inc. ...

Save As New Duplicate... OK Cancel Reset Apply

Figure 129 Add/Edit Inventory PVMax Controller Screen

➤ **Rack Indicator tab (Command A ports)**

IC\_3423-

General **Rack Indicator** Notes

Port	Rack Name	Rack Location
1		
2		
3		
4		
5		
6		
7		
8		

Assign Remove

Save As New Duplicate... OK Cancel Reset Apply

*Figure 130 Add/Edit Inventory PVMax Controller Screen*

1. To assign a Rack to a Rack Indicator, click **Assign**. The following *Assign Rack to Rack Indicator* screen opens.

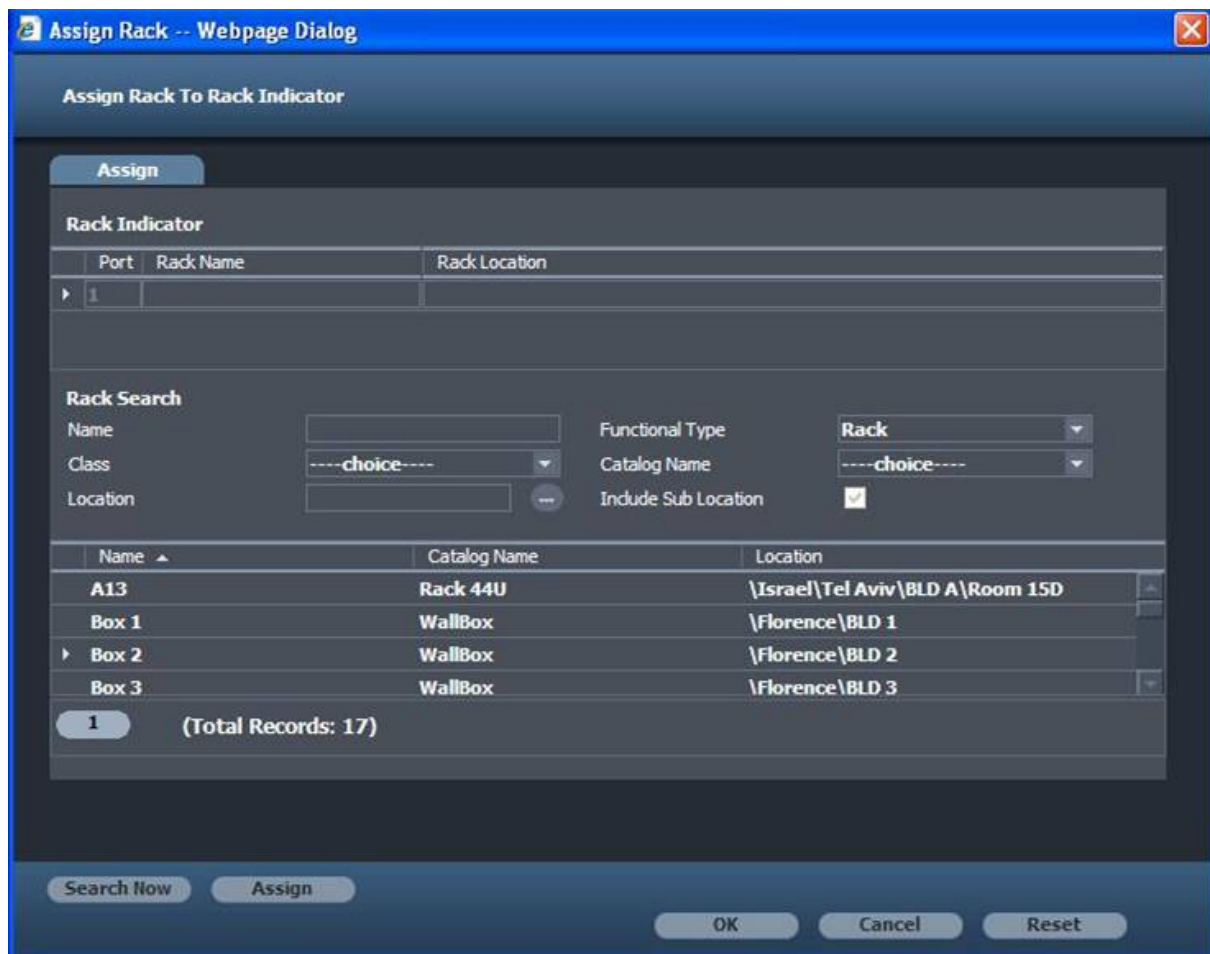


Figure 131 Assign Rack to Rack Indicator Screen

- Click **Search Now** to view all available racks for assignment.

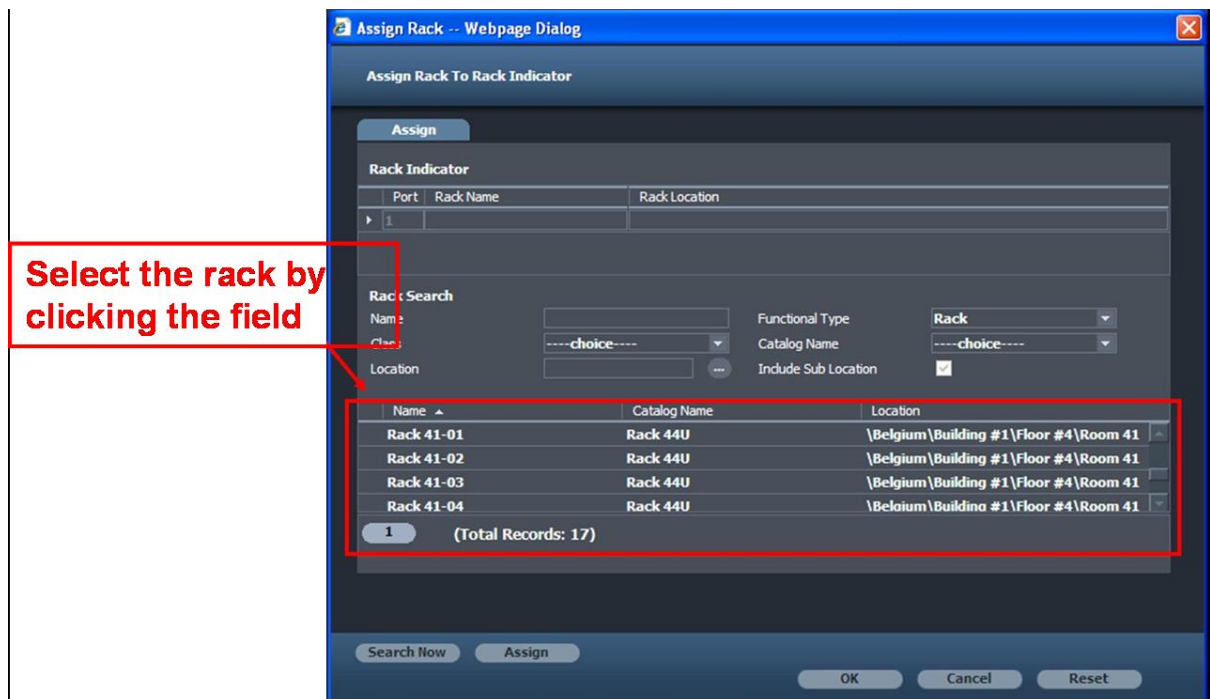


Figure 132 Assign Rack to Rack Indicator Screen

- Select the Rack and click **Assign**. Click **OK** to save selection.

4. Click **Remove** to remove the association of the Racks to the selected Rack Indicator.
5. The assigned Rack displays the rack name and location in the Rack Indicator tab.

► **Activator tab (Command B ports)**



Figure 133 - Activator Tab - Add/Edit Inventory PVMax Controller screen

**Columns**

The following table lists the column name and function in the above **Activator tab** of the *Add/Edit Inventory PVMax Controller* screen:

Column	Function
Port	Default port index
Appliance	A user defined name for the port, default 'Activator #n'.
Location	Device location.
On Status	Status of the device. This is a user defined field that represents the ON status
Off Status	Status of the device. This is a user defined field that represents the OFF status
Command Type	The status can be either: On/Off/Pulse or On/Off or Pulse
Delay Time	Pulse delay time in hh:mm:ss time format
Pulse Time	Set by the user in hh:mm:ss time format to determine the pulse duration.
Event	Check box – Check-mark port events to be shown in the event log. The default is checked.

**Clear Location**

The Clear Location button clears the device location of the selected ports.

► I/O Tab

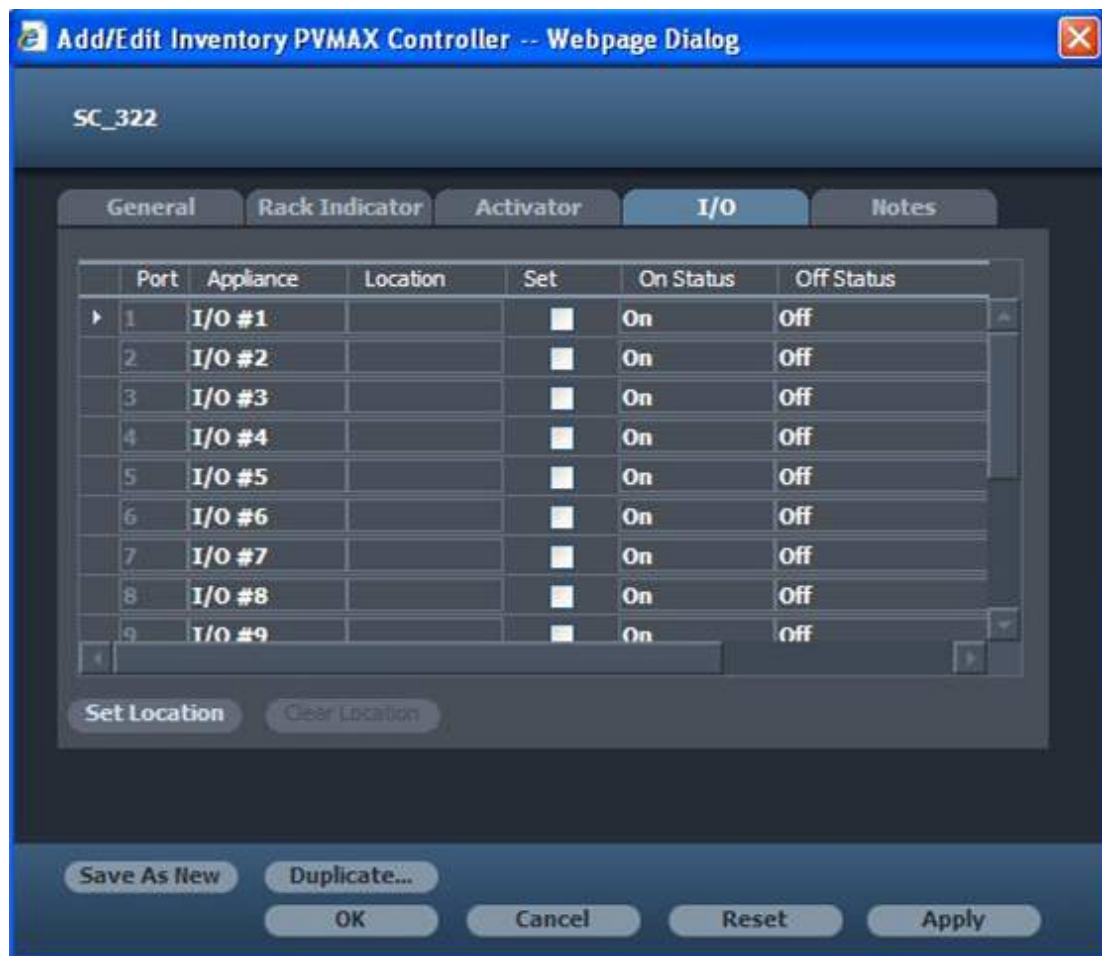


Figure 134 I/O Tab - Add/Edit Inventory PVMax Controller Screen

### Columns

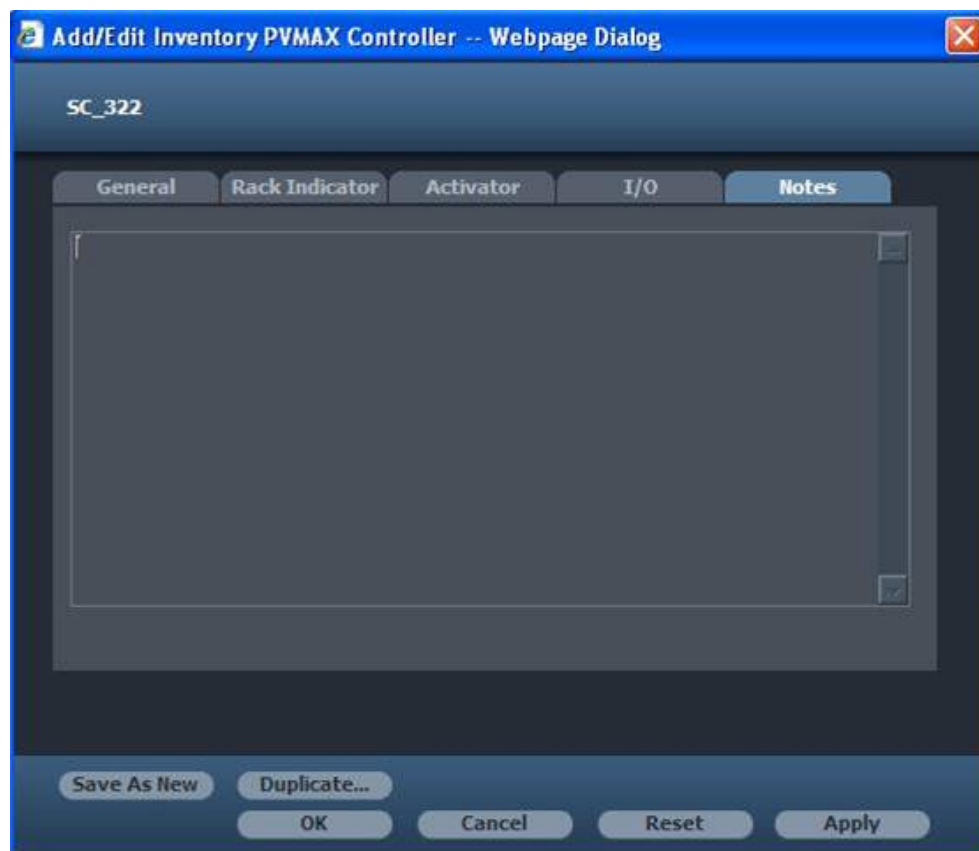
The following table lists the Column name and the function in the above **I/O tab** of the *Add/Edit Inventory PVMax Controller* screen:

Column	Function
Port	Default port index.
Appliance	A user defined name for the port, default 'I/O #n'.
Location	Device location.
Set	The Set Location button sets the device location
On Status	Status of the device. The default status is 'On'.
Off Status	Status of the device. The default status is 'Off'.
Event	Check box – Check-mark port events to be

	shown in the event log. The default is checked.
--	---



➤ **Notes tab**



*Figure 135 Notes Tab - Add/Edit Inventory PVMax Controller Screen*

## **View Inventory**

Selecting a PVMax Security Controller in the Inventory displays its properties. The View enables you to control the commands and view its status. The Information pane on the right-hand side of the screen displays the properties. The following tabs can also be found in the Information pane:

➤ **General**

Displays general information regarding a Security Controller.

**SC\_322**


General

Rack Indicator

Activator

I/O

Notes

Functional Type	PVMax Controller	
Class		
Catalog Name	PVMax Security Controller	
Online Status	Not assigned	
Serial No.		
SW Ver.		
Type	Stand Alone	
Size (U)	1	
Power (W)	45	
Location	\\Amber Inc.	

Edit...

➤ **Rack Indicator**

Displays the name and location of the rack to which the rack indicator is attached.



➤ **Activator**

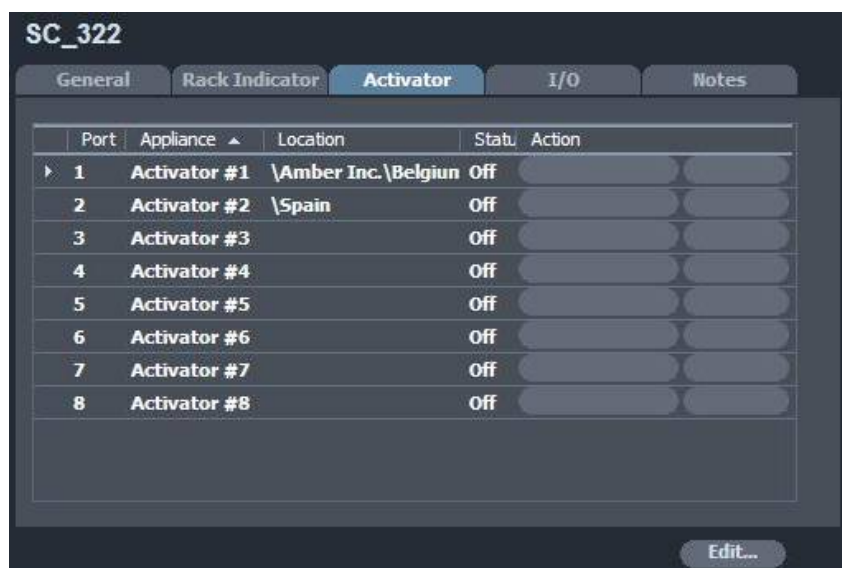




Figure 136 - Information Pane – Activator Tab

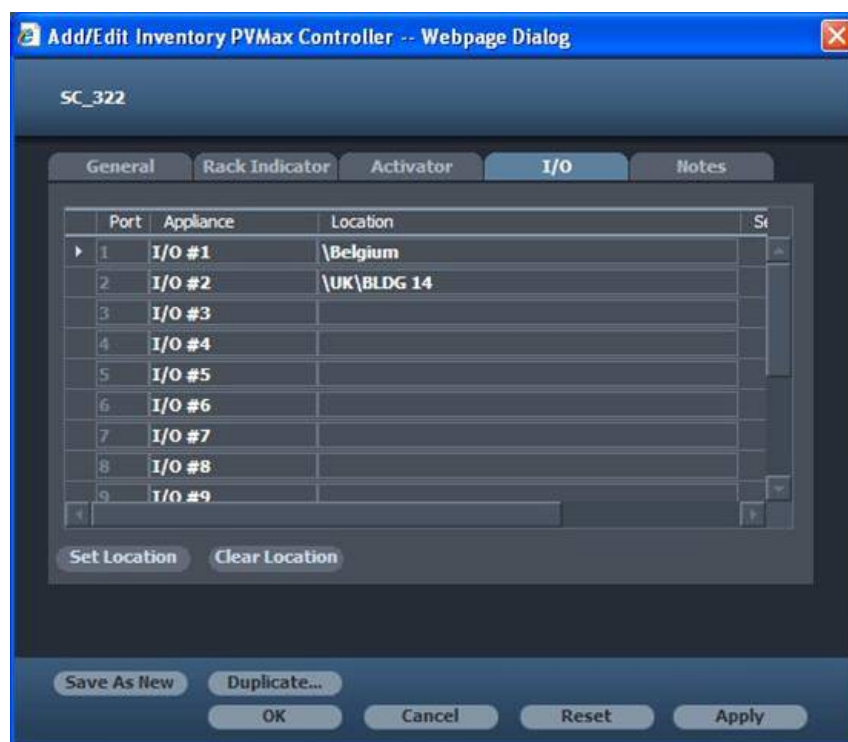
**Columns**

The following table lists the Column name and the function in the above **Activator tab** of the *Add/Edit Inventory PVMaX Controller* screen:

Column	Function
Port	Default port index.
Appliance	A user defined name for the port, default 'Activator #n'.
Location	Device location.
Status	Status of the device. This is a user defined field that represents the ON status

Column	Function
Action	<p>User defined On and Off. Enabled only if the command type is On/Off/Pulse or On/Off).</p> <p>Pulse – Enabled only if the command type is On/Off/Pulse or Pulse and the pulse duration is greater than zero.</p> <p>The icons are:</p> <div style="display: flex; align-items: center;">  Not set          Set       </div>
Event	A Yes/No status

### ► I/O



### Columns

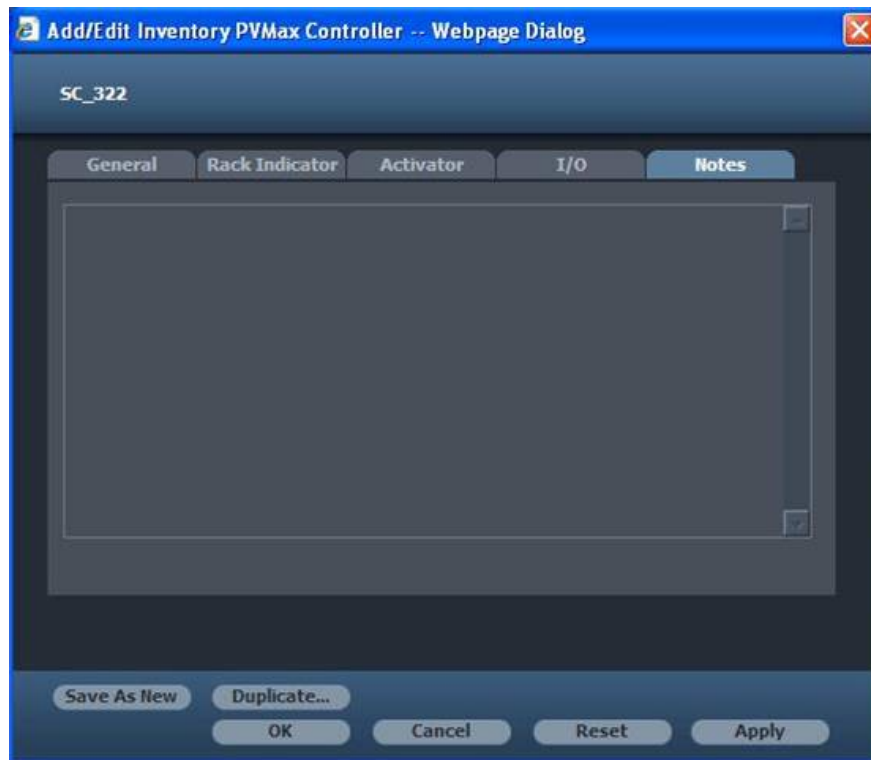
The following table lists the Column name and the function in the above **I/O tab** of the *Add/Edit Inventory PVMax Controller* screen:

Column	Function
Port	Default port index.
Appliance	A user defined name for the port, default 'Activator #n'.
Location	Device location.
Set	Yes/No status
Status	The status is user defined to Yes/No

Column	Function
Event	Displays the event status for each port

➤ **Notes**

The Notes tab is for general remarks.



## Duplicate and Save as New

The **Duplicate** and **Save as New** function creates a new copy of the inventory item.

**Note:**

*Some fields are cleared during the copy*

When a Rack is created using the **Duplicate** or **Save as New** option, the original association to the Security Controller Commands is lost.

## Events

PV4E Security Controller activates the following events:

### PVMax Controller port changed to on/off

Event is sent when a PVMax Security Controller port changes its status to on or off. The initiator of the event can be a user or a device.

### PVMax Controller port is already in status

Event is sent when a PVMax Security Controller port is asked to change into its current status. The initiator of the event is the user.

### PVMax Controller port error

Event is sent when a PVMax Security Controller port returned error. The initiator of the event is the user.

#### **PVMax Controller Configuration Download Failed**

Event is sent when the configuration file download fails.

### **Assigning a Rack Indicator to a Rack**

The following instructions describe how to assign a Rack Indicator or any other device to a Rack.

**Note:**

*All Rack assignments are performed in the Location tab of the Maintenance screen.*

1. Select a Rack to be assigned from the Location tree in the System View window.
2. The Rack properties are displayed in the Information pane.
3. To assign a Rack, click **Edit** in the Information pane.
4. The *Add/Edit Inventory Rack* screen is displayed

There are two additional buttons in the *Add/Edit Inventory Rack* screen, **Assign** and **Remove**. **Assign** opens a new screen that searches a Security Controller to assign to the selected Rack.

**Remove** clears the association.

**Note:**


*The Rack Indicator edit box cannot be changed manually.*

5. Click **Assign** in the *Add/Edit Inventory Rack* screen.  
The following *Assign Rack Indicator to Rack* screen opens:
6. From the drop-down menu in the Catalog Name field, select **PVMax Security Controller** and click **Search Now**:

The *Assign Rack Indicator to Rack* screen opens.

To view all the relevant Security Controllers, click **Search Now**. The upper grid displays all available Security Controllers. The lower grid displays the Rack Indicator.

To assign the Rack:

1. Select the Security Controller from the upper grid.
2. Select the Rack Indicator from the lower grid by placing the mouse cursor on the field. The  icon indicates the active row. Click **OK**.
3. The *Add/Edit Inventory Rack* screen opens showing that the Rack Indicator has been assigned.

## Remote Software Download (RSD)

The PV4E Server will perform the RSD for the Security Controller as it does for any other PVMax device.

## Adding a Control Pad to Location

Control Pads are not assigned to specific racks. Each site has one Control Pad, which will be connected to the first Scanner in each site.

This could be the Master Scanner or a Satellite Scanner. There are different settings for the Control Pad that are set in *Topology*. See *Topology*.

> **To add a Control Pad to Location**

1. Select the room in the Location Tree where the Control Pad is to be assigned.
2. Right-click the selected Room. A pull-down menu will appear.
3. Select Add PatchView Equipment and click on Control Pad.

The *Add/Edit Inventory Control Pad* dialog box opens

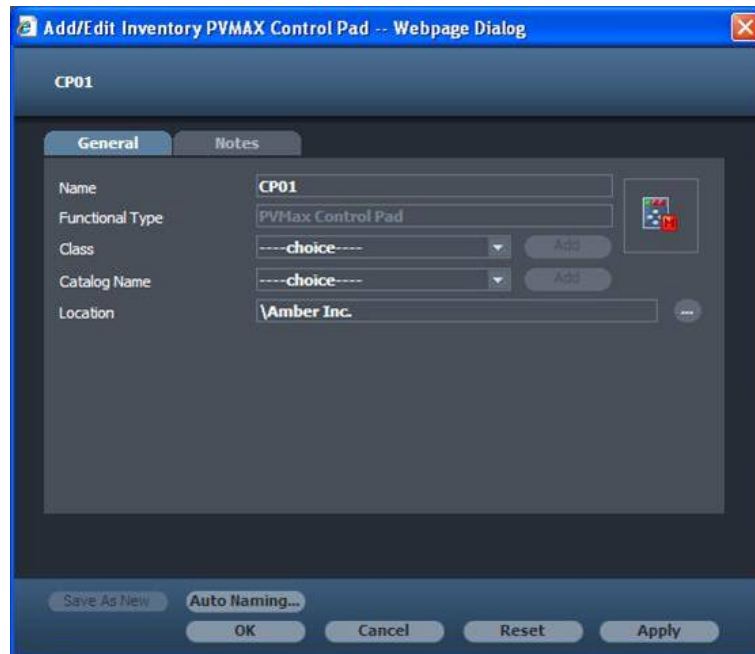


Figure 137 - *Add/Edit InventoryControl Pad dialog*

4. Type in the name of the Control.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
5. Select the Class by clicking on the button (optional).
6. Select the Catalog Name by clicking on the button.
7. Change the location (optional). See *To change the Location of an Item*.

## Adding Connecting Hardware to Location

This section explains how to connect hardware to a location.

### Adding Outlets to Location

In order to assign the outlets to the correct location, it is advisable to have the list of outlets and their actual physical location.

> **To add an Outlet to the Location**

1. Select and right click on the desired location in the Location Tree.  
A pull-down menu will appear.
2. Select Add Connecting HW and click on Outlets.  
The *Add/Edit Inventory Master* dialog will open.



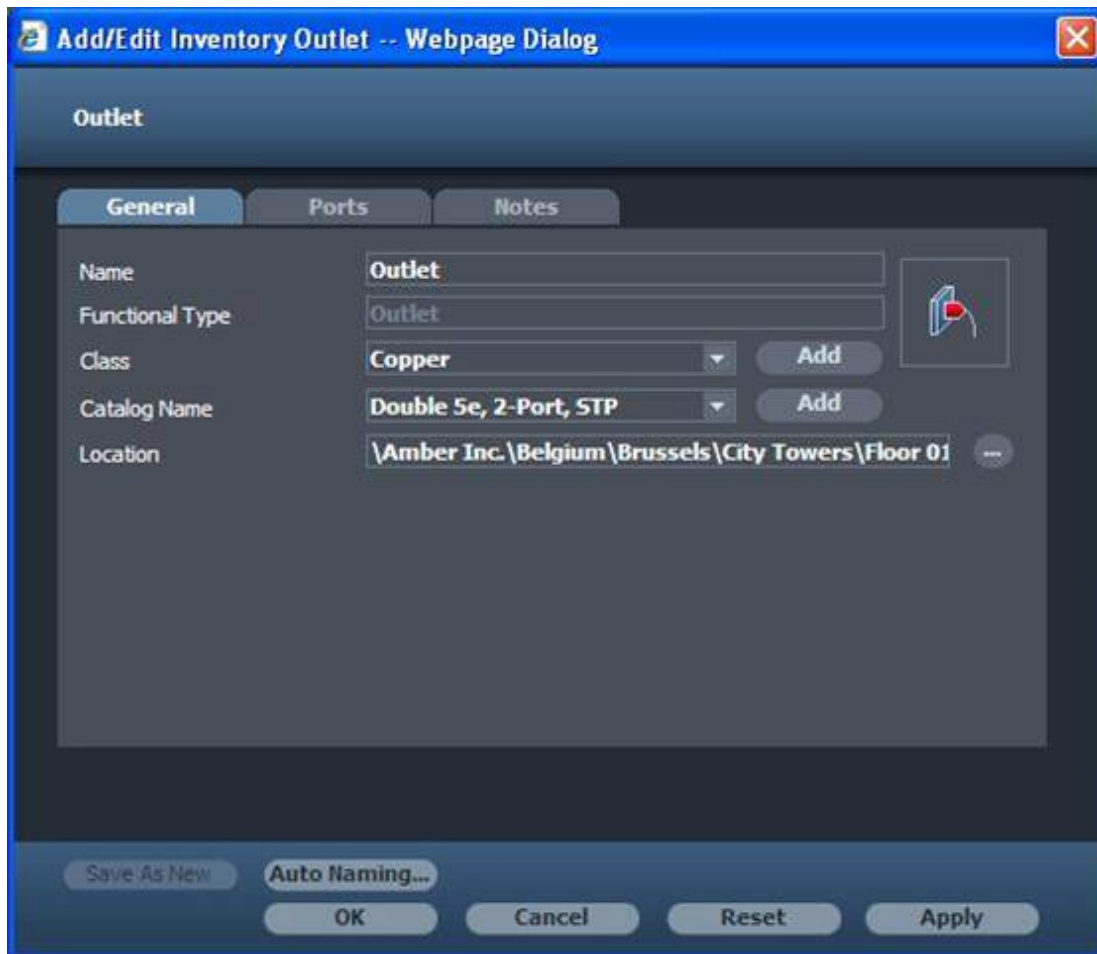





Figure 138 - Add/Edit Inventory Outlet dialog



3. Type in the name of the Outlet. The Auto Naming feature can be used. See *Auto Naming Feature*.
4. Select the Class by clicking on the  button or add a new class by clicking on the Add button.
5. Select the Catalog Name by clicking on the  button or add a new class by clicking on the Add button.
6. The location can be changed by clicking on the  button. See *To change the Location of an Item*.
7. Click **OK** to proceed.

## Adding Patch-Panels to Location

### > To add a Panel to Location

1. Select the Rack in the Location Tree where the Panel is to be assigned.
2. Right-click on the selected Rack.  
A pull-down menu will appear.
3. Select Add Connecting Equipment and click on Panel.  
The *Add/Edit Inventory Panel* dialog will open.

Figure 139 - Add/Edit InventoryPanel dialog

4. Type in the name of the Panel.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
5. Select the Class by clicking on the  button (optional).
6. Select the Catalog Name by clicking on the  button.
7. Change the location (optional). See *To change the Location of an Item*.

**Note:**

*The Ports will be filled in automatically when the Catalog Name is selected.  
The Scanner Name and Connectors will be added automatically when the Panel is assigned to its scanner in Topology.*

8. Check the Link Terminator checkbox if the Panel is to be used as an outlet, for directly connecting servers to it. This option will allow the P LET to identify, locate and link servers discovered during the P-LET process.
9. Click **OK** to proceed.

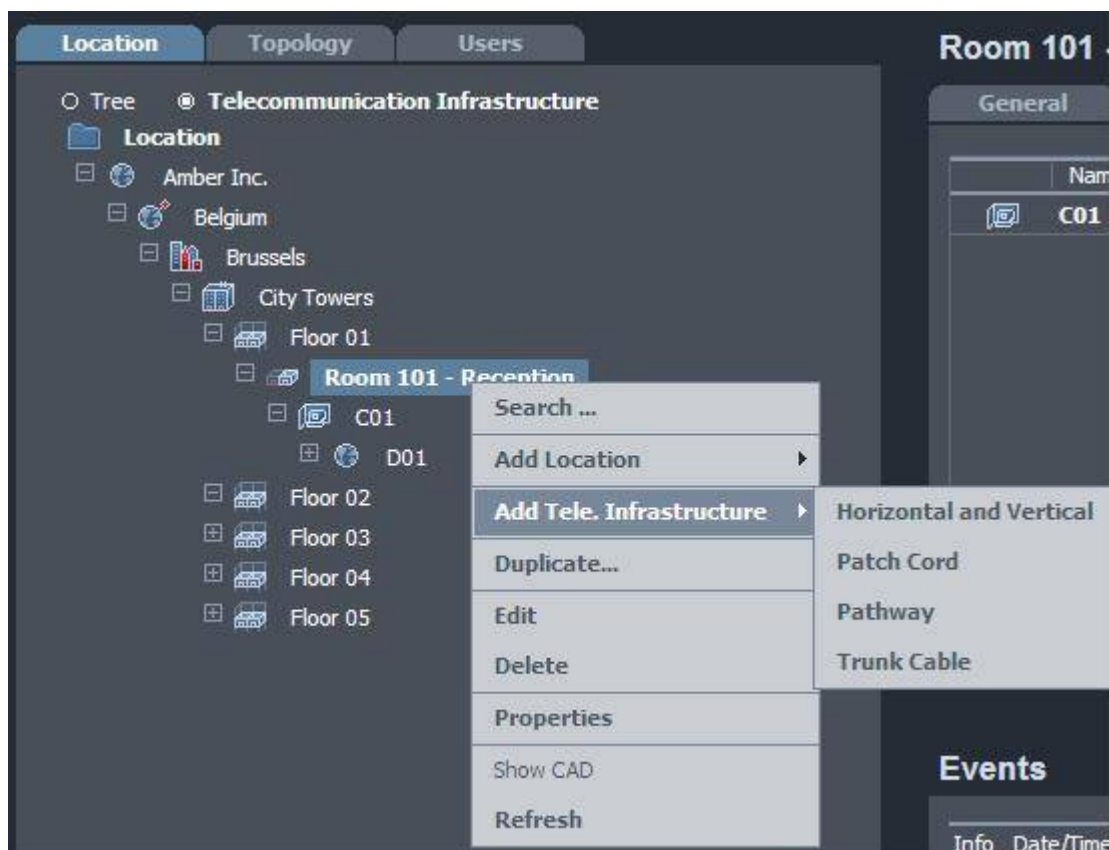
## Adding Telecommunication Infrastructure

### Adding a Cable (Horizontal and Vertical/Patch Cord)

1. Select the **Infrastructure** radio button, see the following:



2. Stand on the location tree and right-click a location (e.g. room). From the context menu select **Add Tele Infrastructure > Horizontal and Vertical** OR **Patch Cord**. (The following example uses Horizontal and Vertical).



3. The following screen opens at the General tab:

## General Tab

**Add/Edit Inventory Horizontal and Vertical -- Webpage Dialog**

**Cable Z-X #1**

**General** | Ends | Paths | Notes

Name: Cable Z-X #1

Functional Type: Horizontal and Vertical

Class: F/O [Add]

Catalog Name: Duplex [Add]

Media Type: FIBER

Length: 0.02 (m)

Diameter: 0 (in)

End Of Warranty: 09/07/2009 Last Updated: 09/07/2009

Start Point: \Florence\BLDG Z\Cabinet Z1

End Point: \Florence\BLDG X\Cabinet X1

Location: \Florence\BLDG Z

Save As New Duplicate... OK Cancel Reset Apply

4. Enter the following details in the **General Tab**:

<b>Name:</b>	Enter name
<b>Functional Type:</b>	Completed by default (from context menu selection)
<b>Class:</b>	Use the drop down list to enter class
<b>Catalog Name:</b>	Use the drop down list to enter catalog name
<b>Media Type:</b>	Entered by default from the Class field
<b>Length</b>	Enter the length of cable. See <i>Measurements</i> section on how to change from Feet to Meters
<b>End of Warranty:</b>	Warranty expiry date
<b>Last updated</b>	Date the record was last updated
<b>Start/End Points:</b>	Is set automatically to the cable's location and updated according to the cable link terminating points. The user has the capability to override the system settings.
<b>Location:</b>	Is set automatically to the cable's location and the user

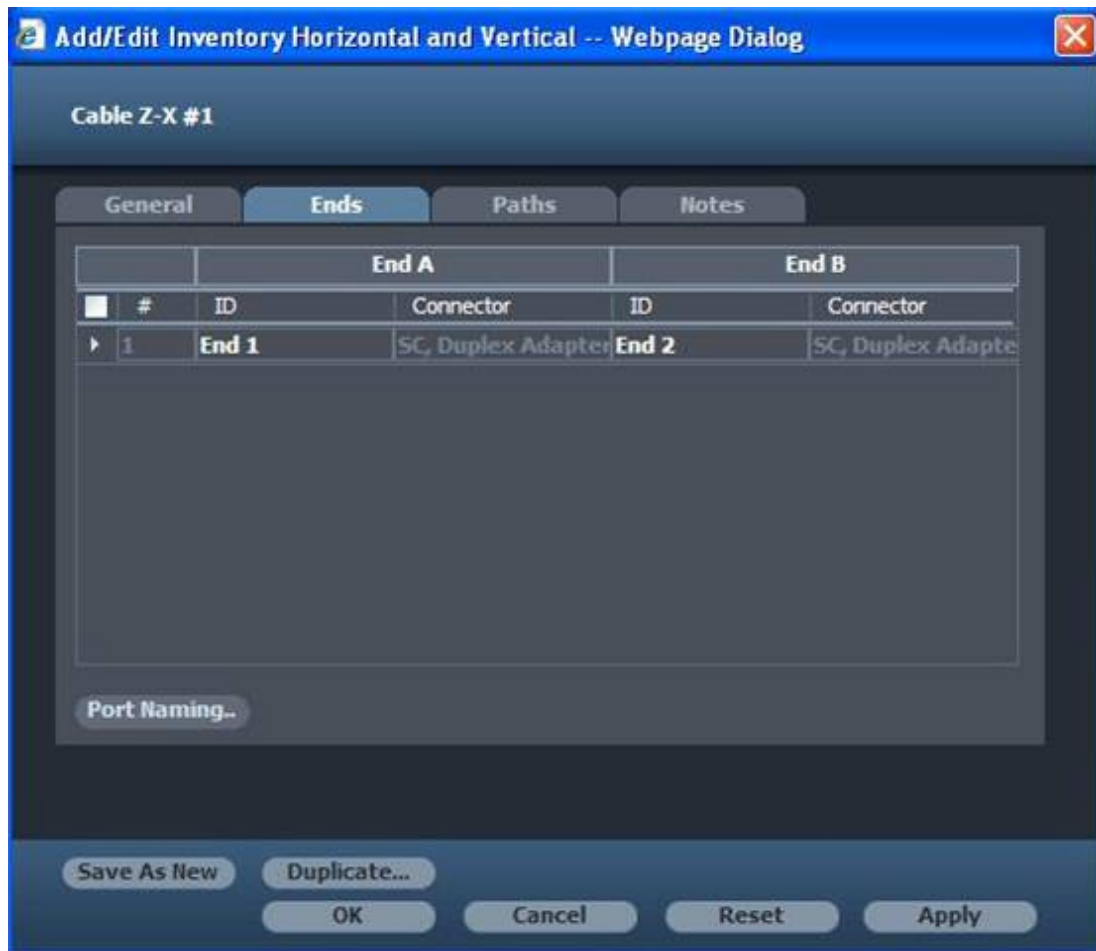
has the capability to override the system settings.

## Ends Tab

Specifies the type of end names and service when relevant.

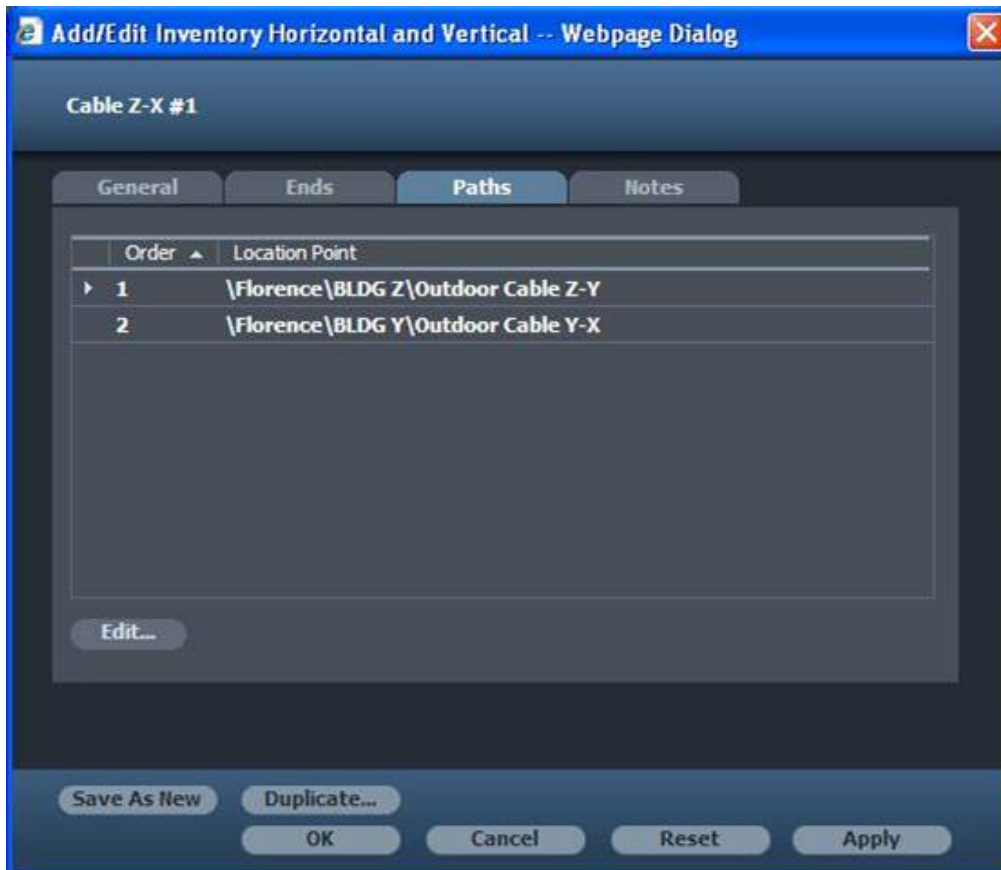
### Note:

*The connector type is set in the Cable Properties in the catalog.*




## Paths Tab

Displays the location points to where each cable passes through (based on data entered by the user).



To add more points, click **Edit**.

To add a path, expand the *Location Tree* on the right-hand side. Select a location and click the arrow . The Location appears in the *Paths* section list on the left-hand side. Repeat the process to add more *paths*. You can use the up/down arrows to move locations in the list.

To remove points. Select point to be removed and click **Remove**.

To remove all points, click **Remove all**.

## Notes Tab

Use the *Notes* section to add any useful notes.

## Adding a Trunk/Multi-pair Cable

Two new cables have been added to the Catalog. These are:

1. Trunk cable
  - A cable that contains multiple cables that can be a mixture of copper and fiber optic
2. Multi-pair cables for copper and fiber optic
  - Two types have been added to the multi-pair family

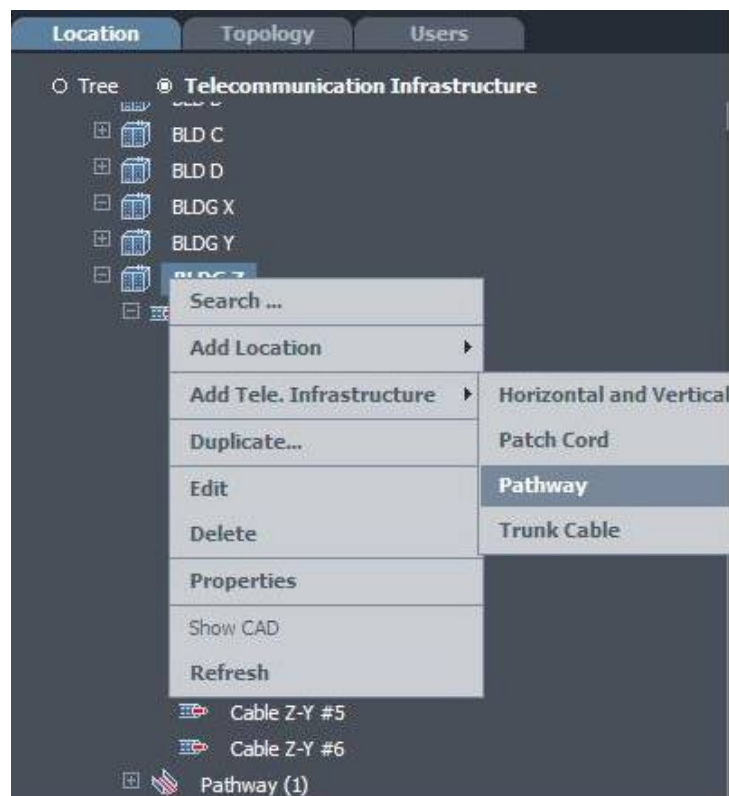
- 25 pair cable
- 50 pair cable

The new cables can be found under *Telecom Infrastructure* > Horizontal and Vertical.

## Adding a Pathway

> To add a pathway, do the following:

From the *Location* tree, stand on the location and right-click the mouse. From the *context menu*, select **Pathway**. See the following:



The following screen opens at the *General* tab:



## General Tab

**Add/Edit Inventory Pathway -- Webpage Dialog**

**General** | Dimensions | Cables | Branching Pts. | Notes

Name:

Functional Type:

Class:

Catalog Name:

Material Type:

Maximum Capacity:  Recommended:

Capacity:

Start Point:

End Point:

Location:

Enter the following:

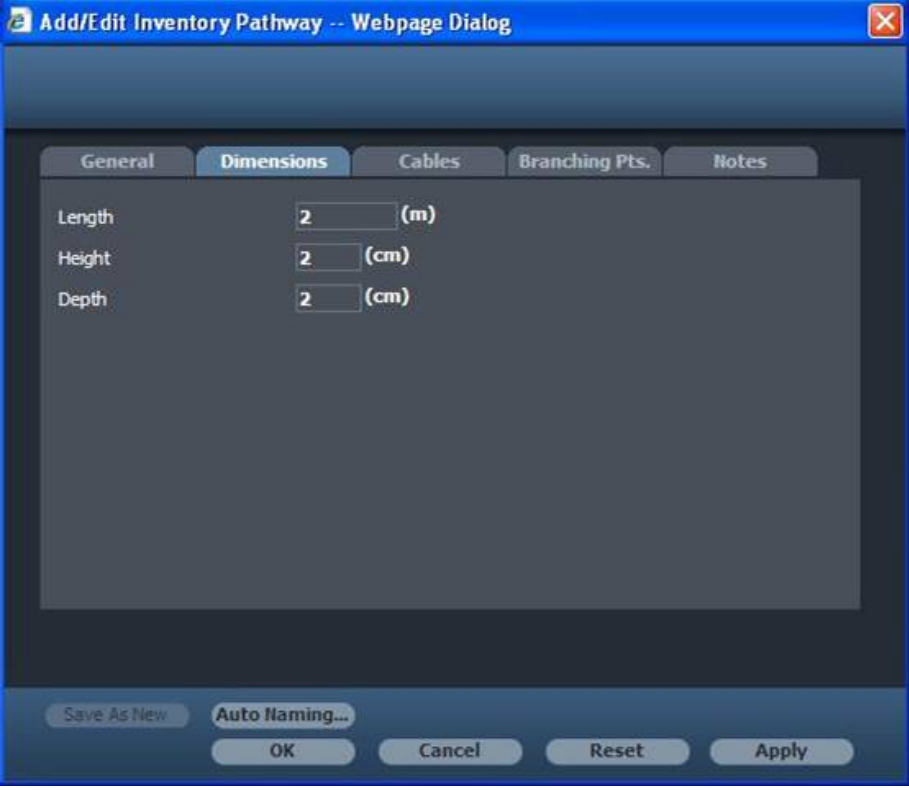
<b>Name:</b>	Enter name		
<b>Functional Type:</b>	Completed by default (from context menu selection)		
<b>Class:</b>	Use the drop down list to enter class. Use the drop-down menu to select		
<b>Catalog Name:</b>	Use the drop down list to enter catalog name. Use the drop-down menu to select		
<b>Material Type:</b>	Metal is entered by default from the Functional Type field		
<b>Maximum Capacity</b>	The maxim number of cables that can be placed on a pathway	<b>Recommended</b>	Suggested number of cables on a pathway (user defined)
<b>Location:</b>	Indicates the pathway location.  Is set automatically to the location where the pathway was entered with the user capability to override the system settings		



## Dimensions Tab

Enter the dimensions of the pathway.

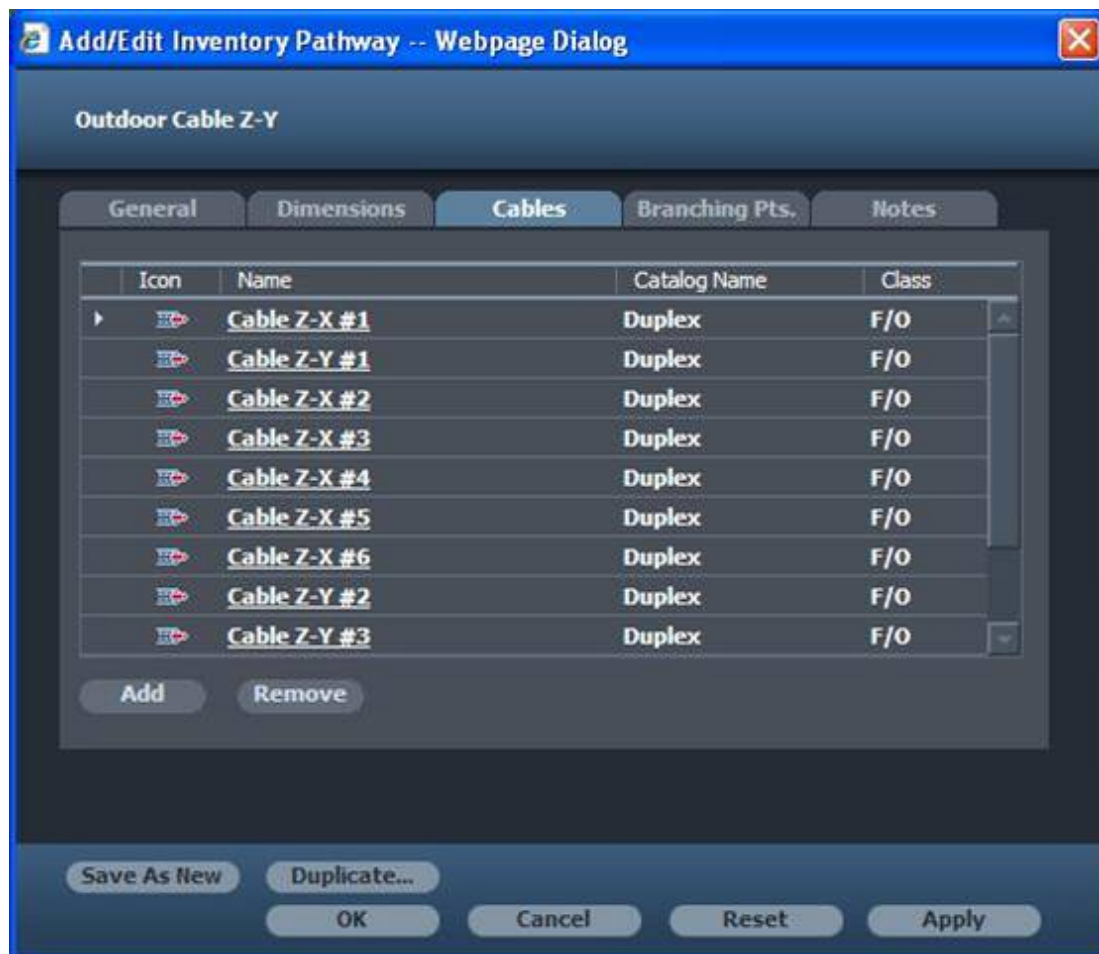
To change to your preferred measuring system, see the Measurements section for options.



The screenshot shows a web-based dialog box titled "Add/Edit Inventory Pathway -- Webpage Dialog". It features five tabs: "General", "Dimensions" (which is selected), "Cables", "Branching Pts.", and "Notes". The "Dimensions" tab contains three input fields: "Length" with a value of "2" and unit "(m)", "Height" with a value of "2" and unit "(cm)", and "Depth" with a value of "2" and unit "(cm)". At the bottom of the dialog, there are buttons for "Save As New", "Auto Naming...", "OK", "Cancel", "Reset", and "Apply".

## Cables Tab

The cables tab displays a list of all cables installed in this pathway and should be equal to or under the maximum capacity.

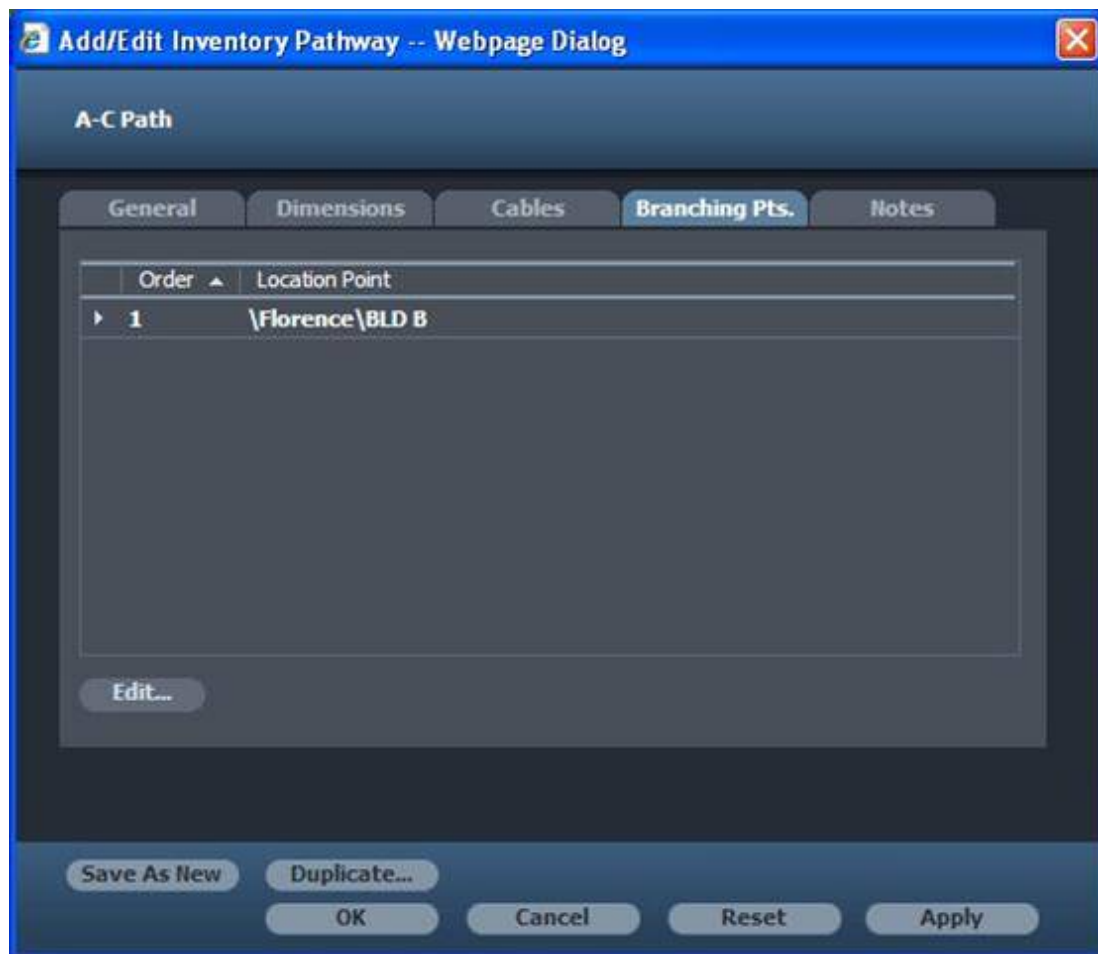



Click **Edit** to add or remove cables. For more information, refer to the section, [Adding a Cable to Pathway](#).

## Branching Points Tab

Displays all the points where pathways pass and can also include other pathways.

1. Click the *Branching Points* tab to view all branching points, e.g. conduits and raceways.



2. To edit the branching points, click **Edit**.
3. To add a branching point, expand the *Location Tree* on the right-hand side. Select a location and click the arrow . The Location appears in the Branching Points list on the left-hand side. Repeat the process to add more branching points. You can use the up/down arrows to move locations in the list.

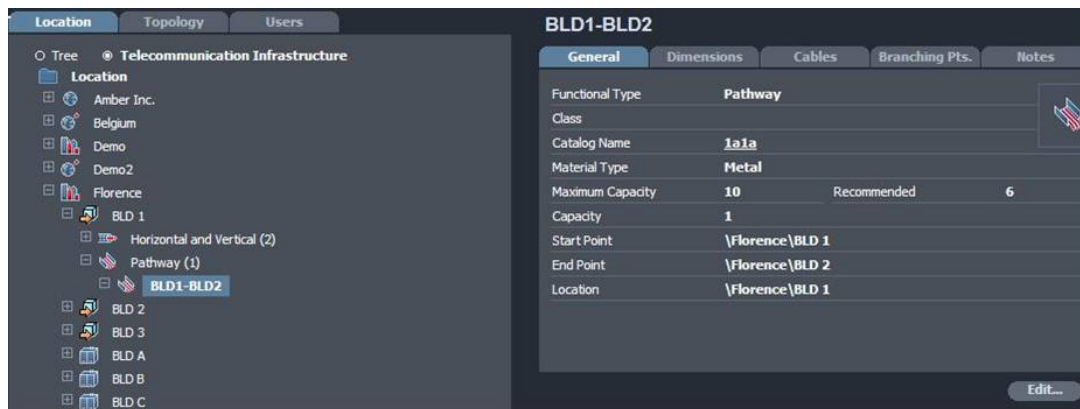
## Notes Tab

Use the notes screen to make any useful notes that you may need.

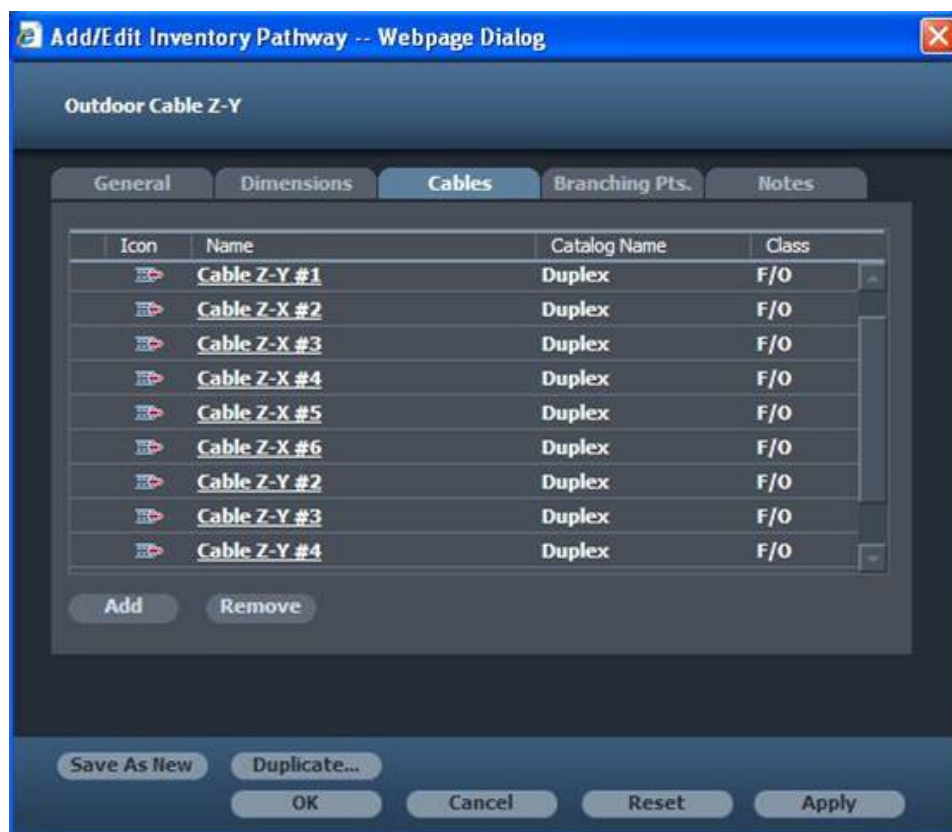
## Adding a Cable to a Pathway

To add a cable to a pathway, do the following:

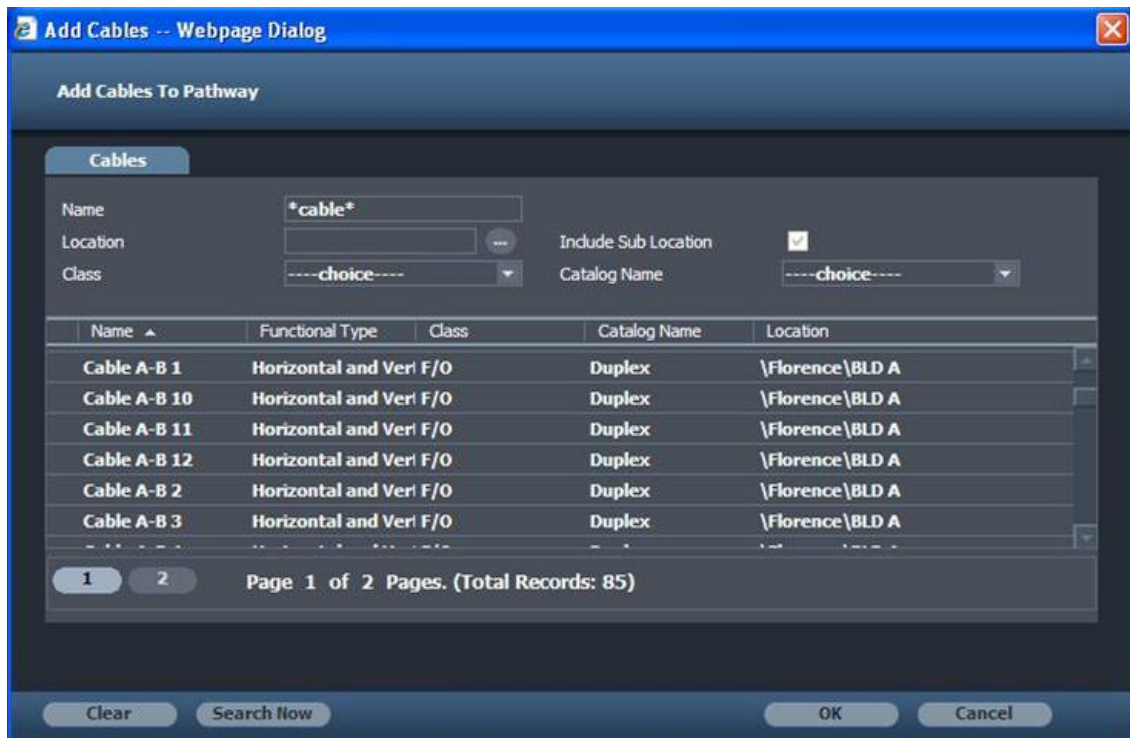
1. Click the pathway on the Location tree. The *Properties* screen for the selected pathway appears on the left-hand side.



2. The following screen opens at the General Tab. Select the Cables tab.



3. To add cables click **Add**. The following screen opens:



- Enter the search criteria in the above fields. To search for all related items use an asterisk (\*). See above. Click **Search Now**. A list of all cables will be returned, according to the search criteria.
- Select the relevant cables and click **OK**.

#### Notes:

*Cables should have already been added to the inventory.*

*You can select cables from the same page. However you cannot multi-select cables from different search results.*

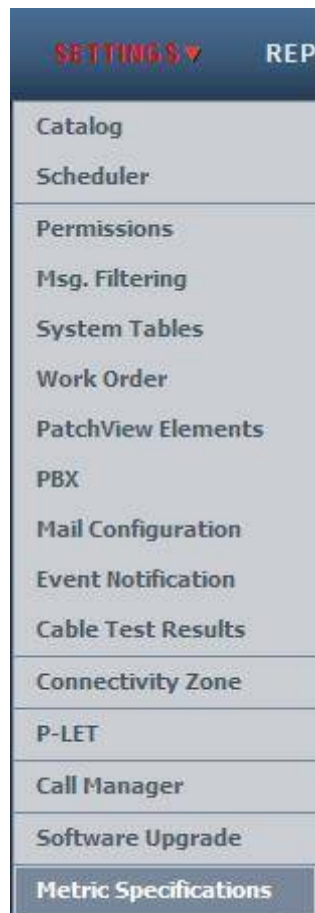
*When the amount of cables exceeds the recommended cables per pathway the user is prompted with a message.*

*When the amount of cables exceeds the maximum allowed cables then adding cables is blocked until the maximum value is increased*

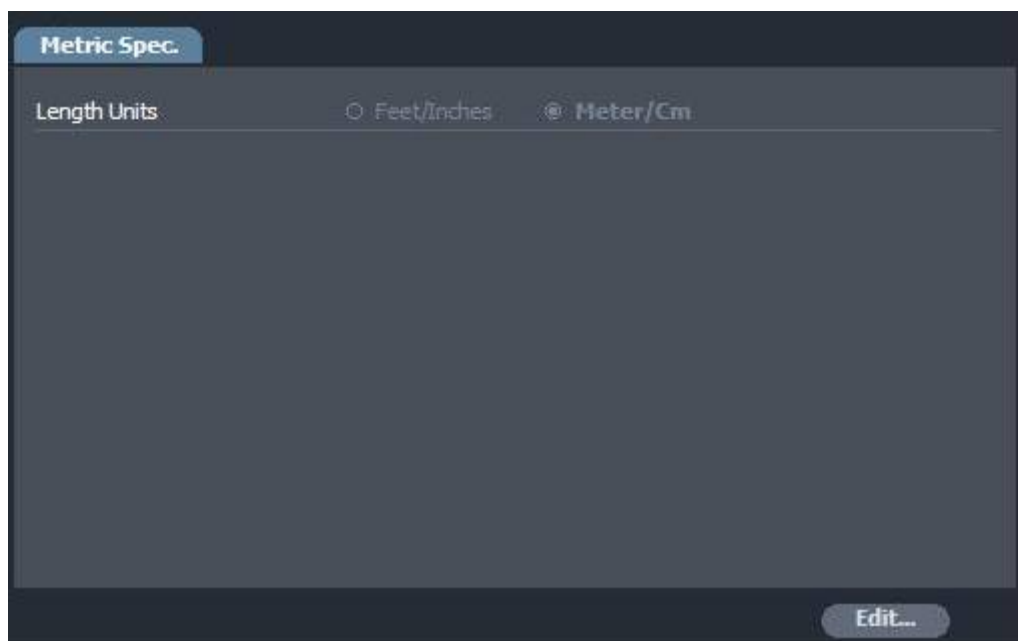
## Measurements

You can work with either metric (meters and centimeters) or imperial measurements (feet and inches) for the cabling entities length. To change to your preferred system, do the following:

- From the *Settings* menu, select **Metric Specifications**.



2. The following screen opens:



3. To change measurements, click **Edit**.

4. Click the radio button for your preferred system and click **OK**.

## Interconnect

Interconnect panels are managed panels in the PV4E system. Unlike other managed panels that occupy physical space in the racks, the Interconnect panels are attached to the front of network switches.

The cables connected to the switch ports are attached through an opening in the Interconnect panels that hold them in place. Special cables are used with metal connectors that are in touch with the Interconnect panel, and function similar to the 9th pin.

## Detecting Interconnect Panel

The Interconnect panel is detected automatically and appears in the PVMax topology tree.

## Assigning Interconnect Panel

It is assigned to an instance in the library like other PVMax panels.

At present there are two Interconnect panels in the catalog: Interconnect panel 24 ports and 48 ports. Both are copper panels.

## Linking the Switch to the Interconnect Panel

Create offline links between the panel and the switch. All of the switch ports (meaning ports of switch modules that appear in the inventory) should be linked to Interconnect panels. None of the Interconnect Panels' ports should be connected to any other device but to the switch modules. However, note that some of the Interconnect Panels may be empty.

## Attaching a Switch to an Interconnect Panel

Check the *Interconnect* check box in the switch edit properties frame. The system then identifies the related Interconnect Panel by interpreting the offline links. It searches for all offline links pointing to one or more Interconnect Panels.

## Rules

When connecting to an Interconnect panel the following three rules apply:

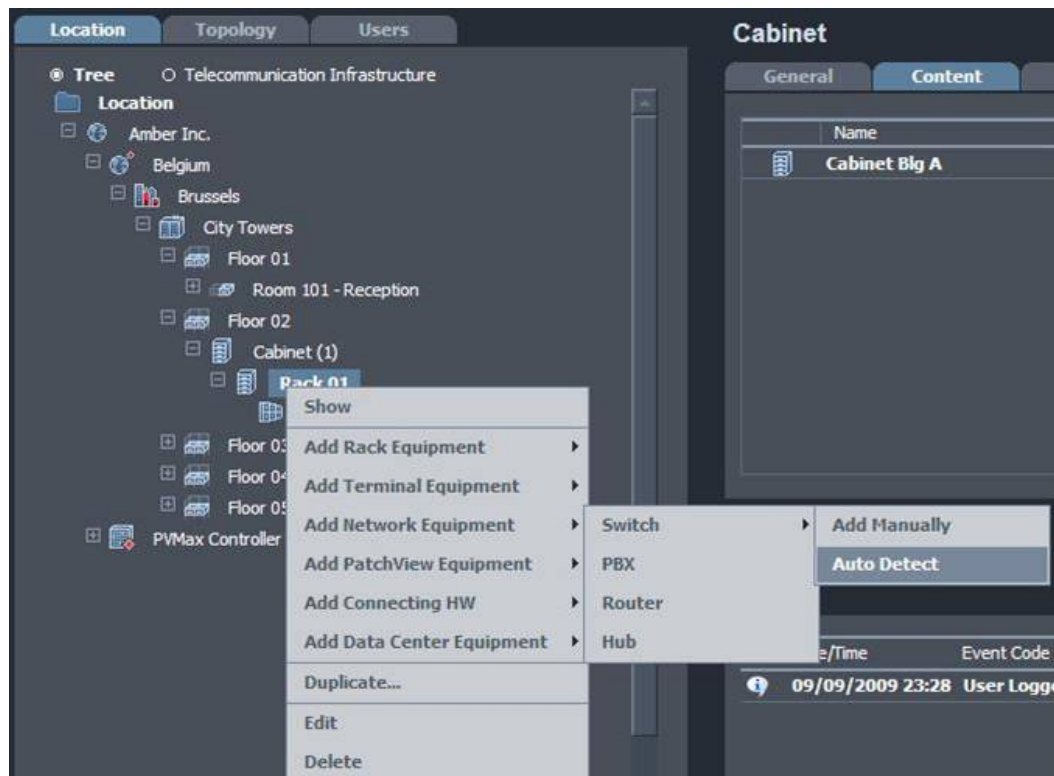
1. All ports of the switch are linked
2. Added ports are linked to Interconnect Panels (one or more)
3. Added interconnect panels are linked to the switch and not to any other item

> **To add an Interconnect panel, do the following:**

**Note:**

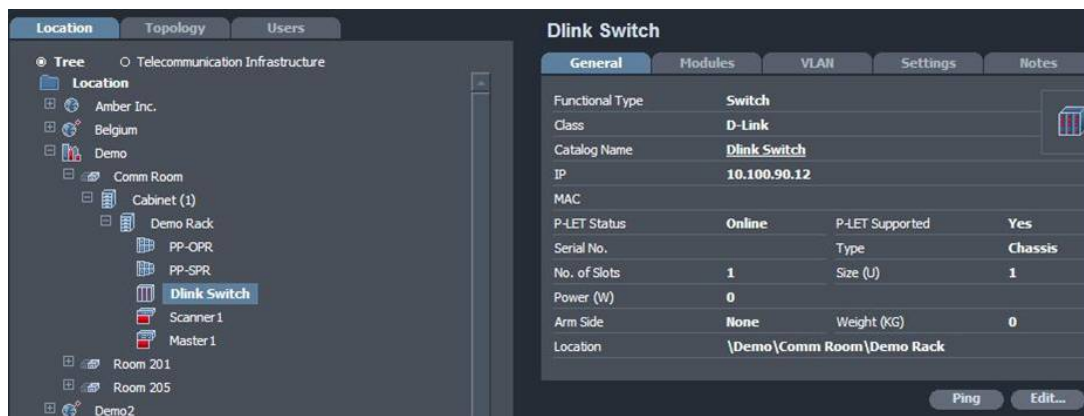
*You can either add a new panel or assign a ghost panel detected by the master*

1. Stand on a *Rack* in the location tree, right-click and select **>Add Network Equipment > Switch > Auto Detect.**



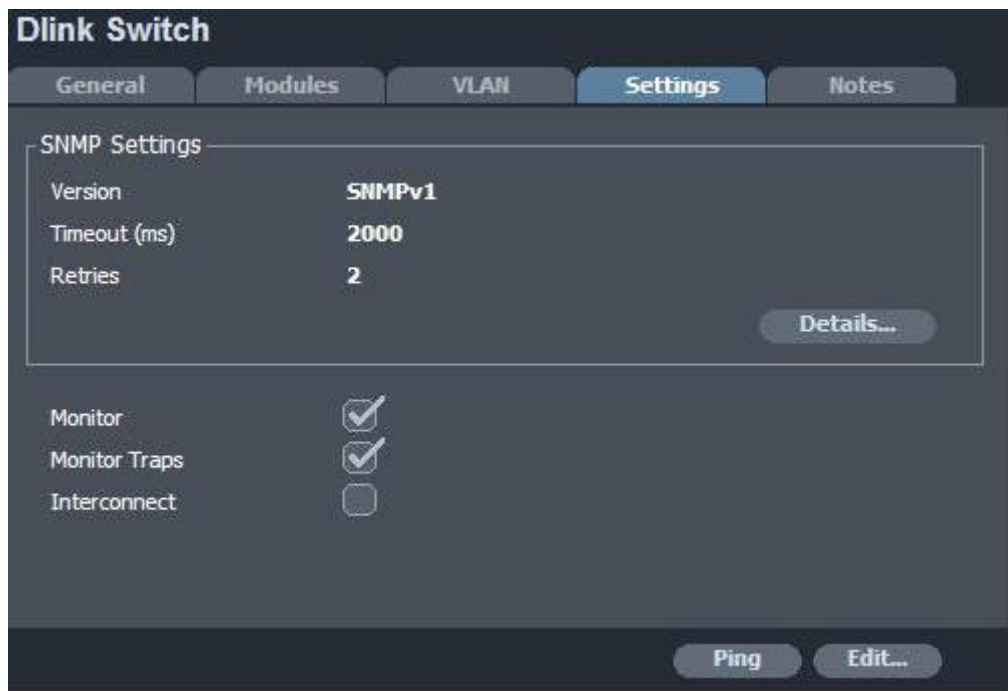
2. Enter the IP address and click **Detect**.

The switch appears in the Location tree. The properties can be viewed on the right-hand side of the screen in the *General* tab.



Select the **Settings** tab. The following Switch properties screen opens:





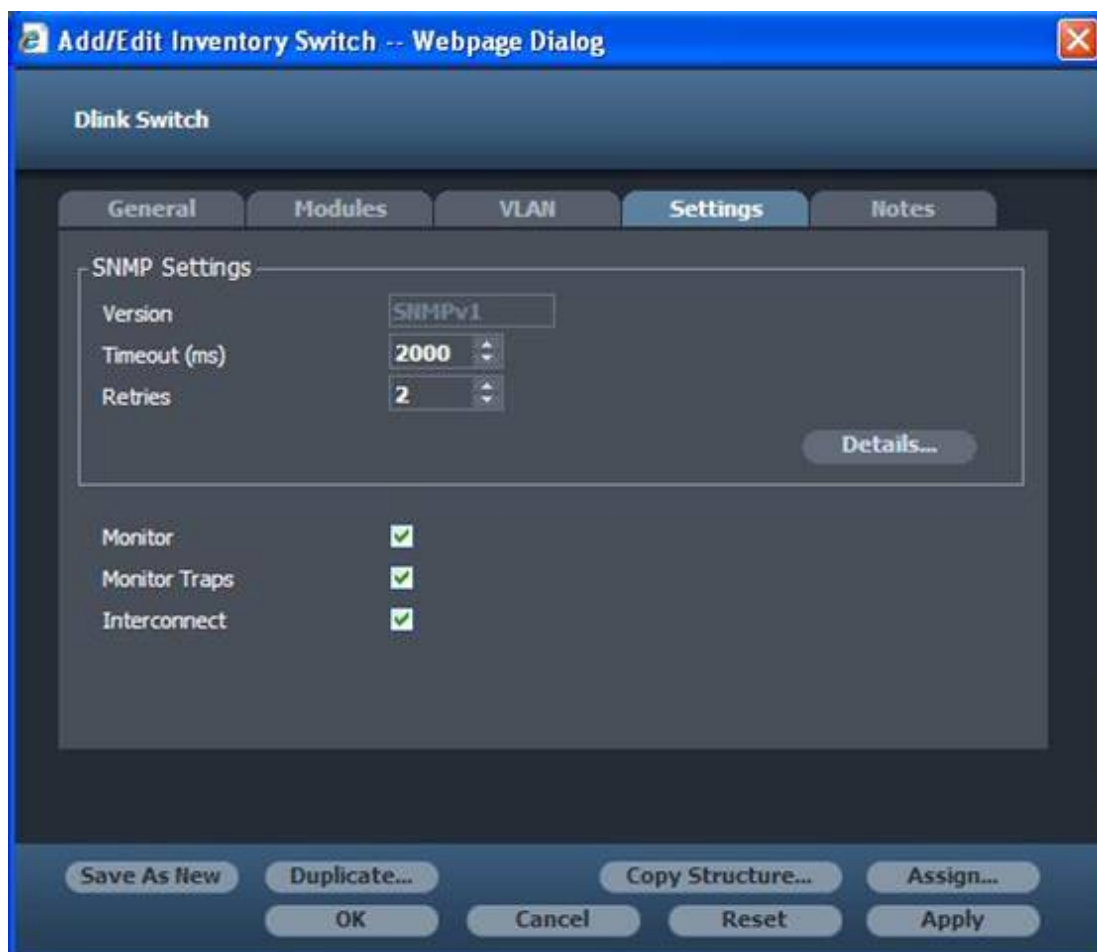
The screenshot shows the 'Dlink Switch' configuration window with the 'Settings' tab selected. The 'SNMP Settings' section is expanded, showing a table with the following values:

Property	Value
Version	SNMPv1
Timeout (ms)	2000
Retries	2

Below the table is a 'Details...' button. Further down, there are three checkboxes: 'Monitor' (checked), 'Monitor Traps' (checked), and 'Interconnect' (unchecked). At the bottom right, there are 'Ping' and 'Edit...' buttons.


Figure 140 Switch Properties View Screen

Click **Edit** to open the Add/Edit Inventory Switch screen:



The screenshot shows the 'Add/Edit Inventory Switch -- Webpage Dialog' window. It contains the same 'Dlink Switch' configuration interface as Figure 140, but with additional controls. The 'SNMP Settings' section is expanded, and the values are the same as in Figure 140. The 'Monitor', 'Monitor Traps', and 'Interconnect' checkboxes are all checked. At the bottom, there are buttons for 'Save As New', 'Duplicate...', 'Copy Structure...', 'Assign...', 'OK', 'Cancel', 'Reset', and 'Apply'.

Figure 141 Switch Properties Edit Screen

To attach the Switch to an Interconnect panel, check-mark the box next to the Interconnect field:  Click **OK**.

One of the following error messages appears if:

- The Switch Port is not linked.
- The Switch Port is linked to an item which is not an Interconnect Panel.
- The Back of the Interconnect Panel is linked to an item other than the selected switch

If any of the above errors are displayed, edit the offline links and check that the [Rules](#) have been implemented.

**Note:**

*The Switch and the attached Interconnect are now presented as one unit, constructed of the switch body and the Interconnect Panel front port.*

## Detaching a Switch from an Interconnect Panel

To detach the Switch from an Interconnect panel, uncheck the Interconnect field in the *Settings* tab. See the following:

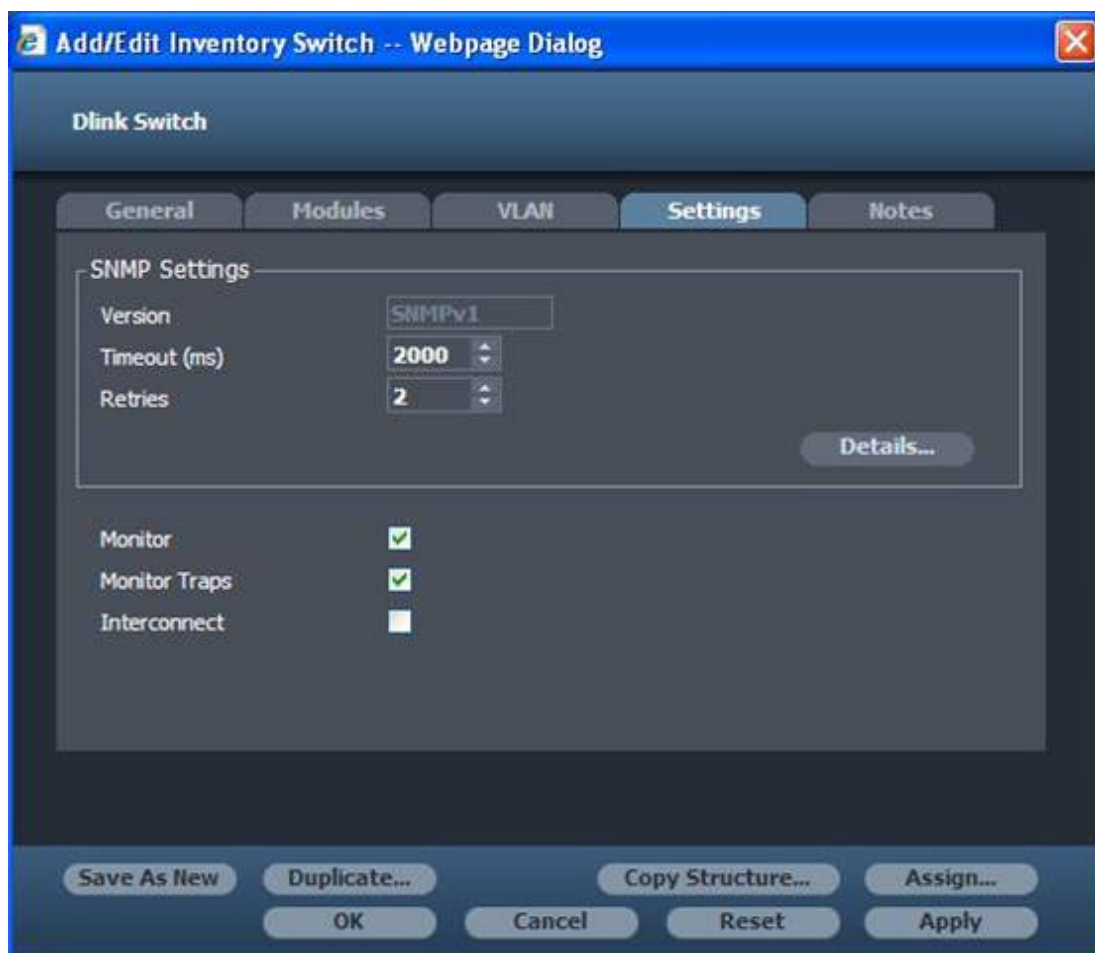
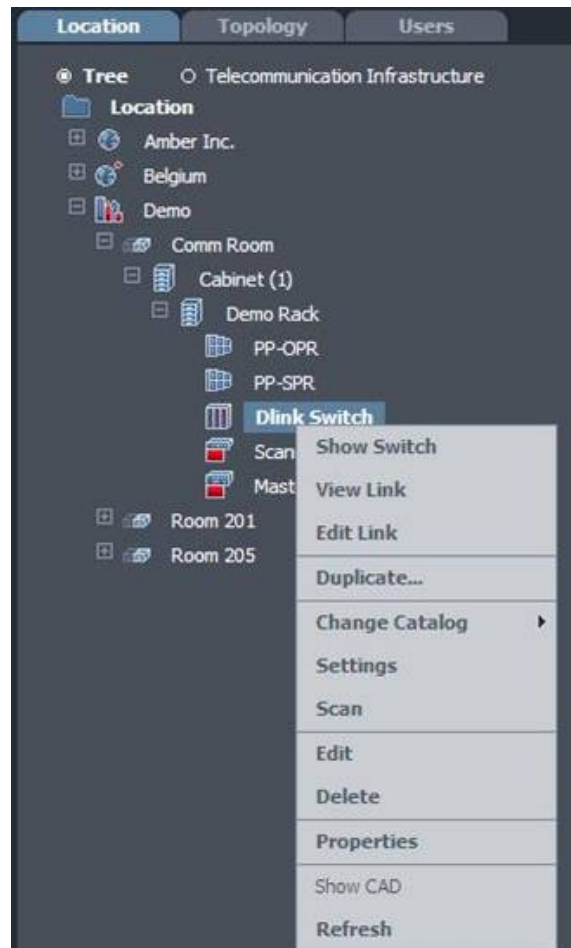


Figure 142 Switch Properties View Screen

## Edit Link

To edit the Switch links, perform the following steps:

1. From the Location tree, stand on the Switch and right-mouse click > **Edit Link**



The following Edit Link screen opens for editing at the foot of the screen:

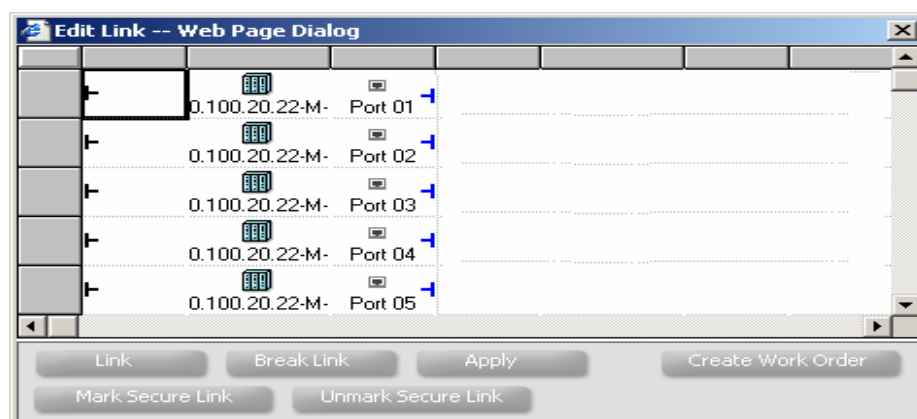


Figure 143 Edit Link

## Link View

To view link, click the port in the panel window.

In the *View link*, similar to the *Edit Link*, the switch and panel are presented as one unit.

## Connected/Disconnected Ports Events and Mail Notifications

When a user connects/disconnects ports from an Interconnect panel that is attached to a switch, the event contains information about the port of the switch rather than the port of the panel. A mail notification event contains the same data.

## Interconnect Panel Views

### Switch View

The Show Switch is a newly added feature and can be viewed in several different ways, to view Show Switch:

- Right-click on the switch in the Location Tree > **Show Switch**. (See *figure 155*)
- The Show Switch can also be viewed through the Link View window by clicking on the switch
- The Show Switch can be viewed by clicking the switch in the rack view

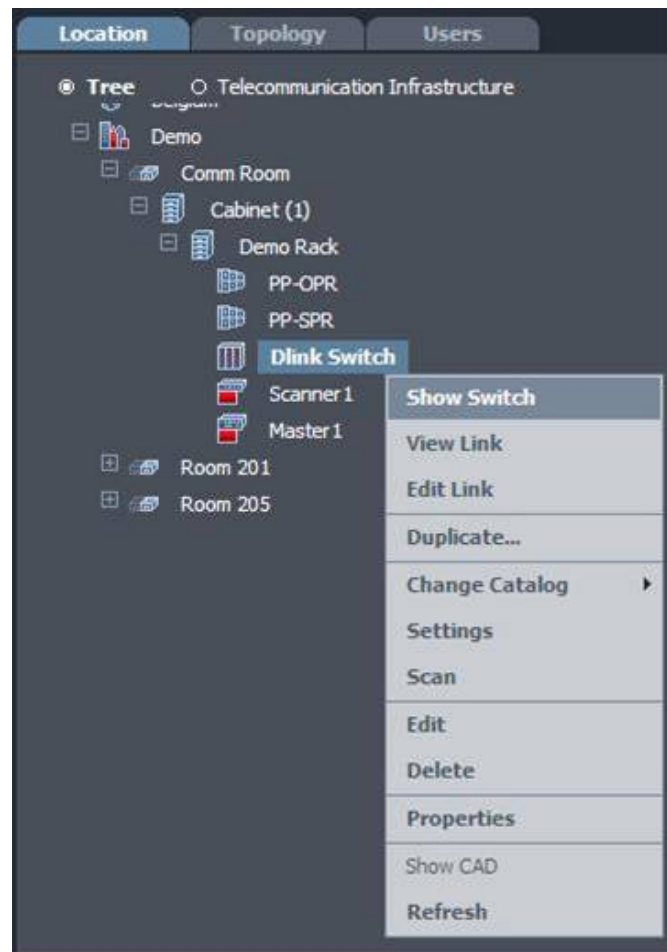


Figure 144 Show Switch

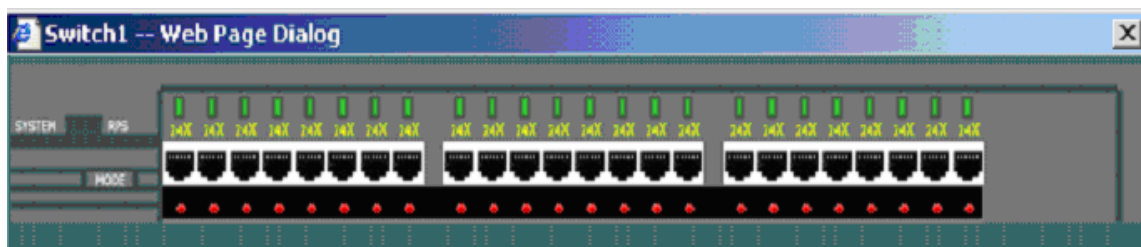


Figure 145 Panel View

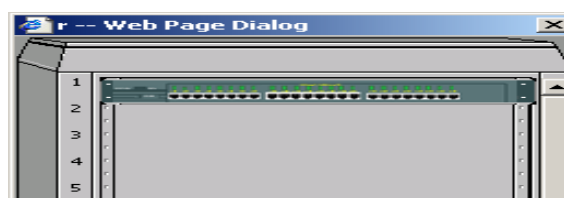


Figure 146 Rack View

## Location Tree and Searches

A new **Panels Connected** field has been added when performing a Switch search with the following options:

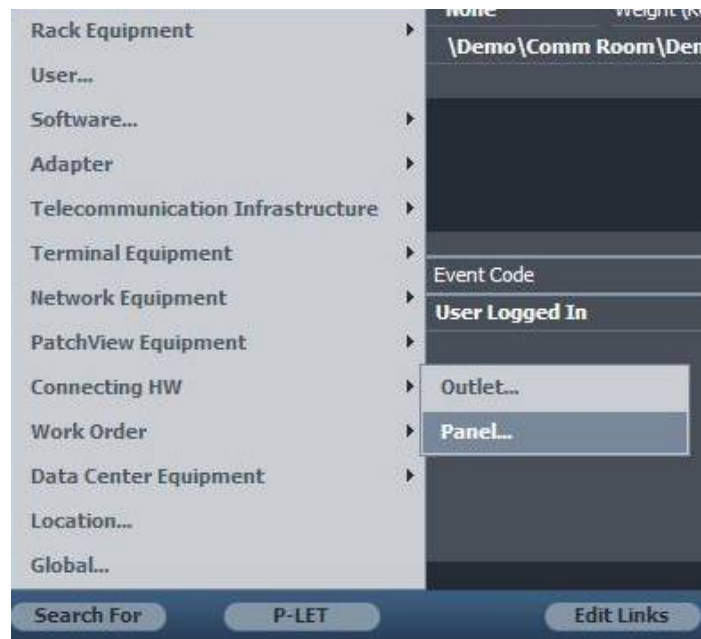
- All – shows all switches
- Interconnect – shows only switches attached to interconnect panels
- Non-Interconnect – shows only switches (not attached to interconnect panels)

### Search for Panel

Since the Interconnect is now attached to a Switch, it will not appear in the Location tree.

To perform a Search, do the following:

Stand on the **Search For** button at the foot of the screen, select > **Connecting HW > Panel**



The following Search window opens:

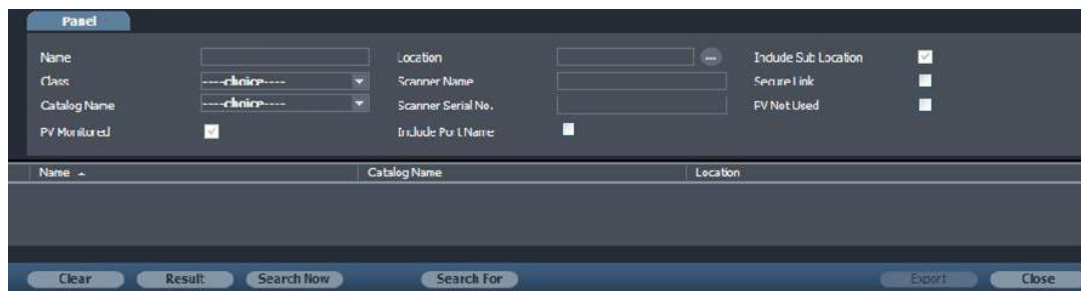


Figure 147 Search for Panel Window

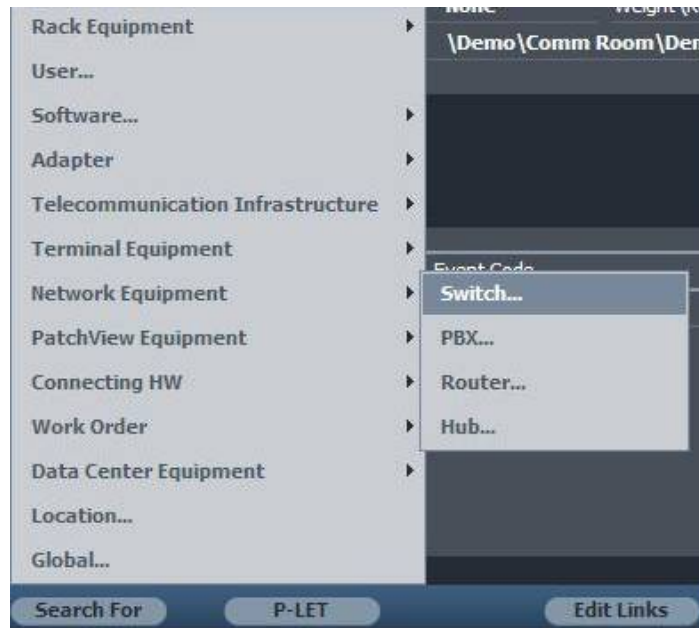
Enter the details of the item being searched for and select **Search Now**.

The searched for items appear at the foot of the screen, beneath the *Search For* window.

### Search for Switch

To search for a Switch, do the following:

1. Stand on the **Search For** button at the foot of the screen, select > **Network Equipment > Switch**



The following Search window opens:

Figure 148 Search for Switch Window

2. Enter the details of the item being searched for and select **Search Now**.

The searched for items appear at the foot of the screen, beneath the *Search For* window.

## Adding Network Equipment

### Default Switch Driver

The Default Switch Driver feature lets you define and activate switches in the PV4E.

Immediately after adding them to the network, with basic switch information necessary for the PV4E system. This feature saves significant time and resources enabling the PV4E system to work properly without the need for additional development.

For more detailed switch information, you can order a specific switch driver with extended switch support for the specific switch.

### Defining New Switches

There are three ways to define a new switch:

1. Detect - Automatic switch detection by the default switch driver and automatic insertion of the switch to the inventory.
2. Add Manually - Predefining the switch in the inventory when the PV4E system is offline and scanning the switch later, when the PV4E system

is online. Inventory switch ports and P-LET detected switch ports may be assigned to each other randomly, not necessarily according to the real switch modules structure.

3. Scan by LAN Mapper - Detects all existing switches and automatically inserts them into the inventory. See *Auto-Detect* for more information.

In most cases, only the relevant information about the respective switch required for the PV4E activity will be presented.

It is possible to manually update the switch inventory item according to the real switch structure.

## Automatically Detecting a Switch

### > To detect a new switch:

1. From the Location tab, find the switch you would like to add in the location tree and right-click on the No Location node.
2. Choose Add Network Equipment>Switch>Auto Detect. The Switch Detection dialog is displayed:

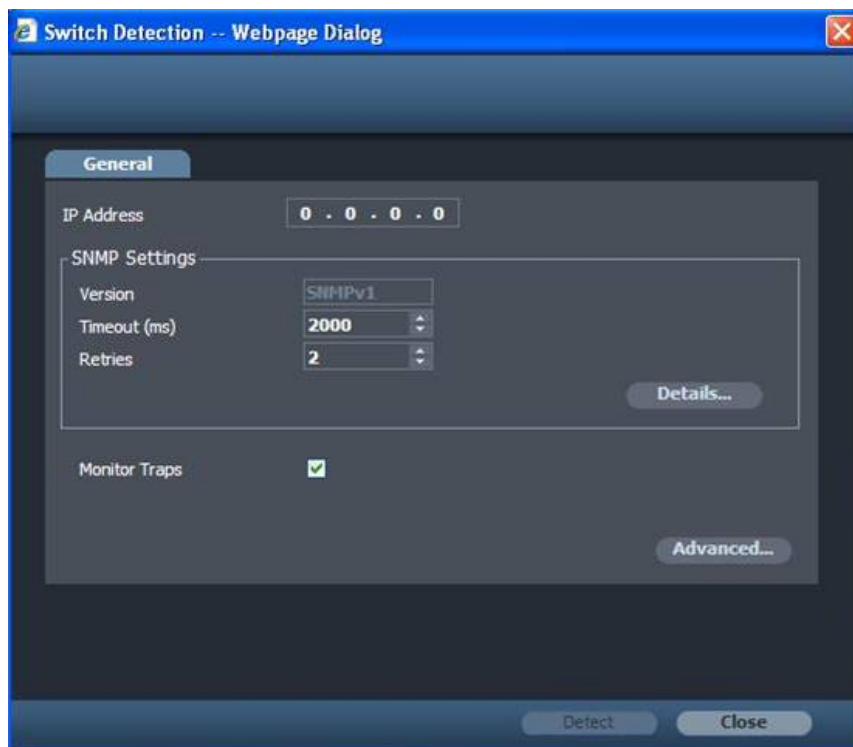


Figure 149 - Switch Detection box (General Tab).

3. Enter the IP Address of the switch in the IP Address field and click Detect to start the P-LET scanning process.



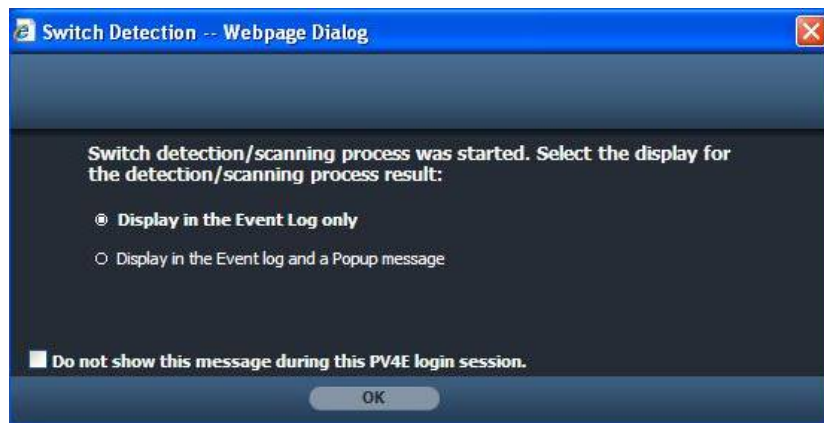


Figure 150 - Switch Detection Message Box.

4. You can display the detection/scanning process results in the Event Log only, or in the Event Log and a popup message dialog. Once you've selected your preferred display you can check the *Do not show this message during this PV4E login session* checkbox to keep this message dialog from appearing again.
5. Click **Yes**. Once the scanning process has completed, the Event Detail dialog is displayed showing the result:



Figure 151 - Even Detail Screen.

The IP Address of the switch is displayed, as well as its Status and Location.

> **To view the properties of a switch:**

1. From the Location tab tree, click on a switch listed under the Switch node. You can then change the respective data as desired.

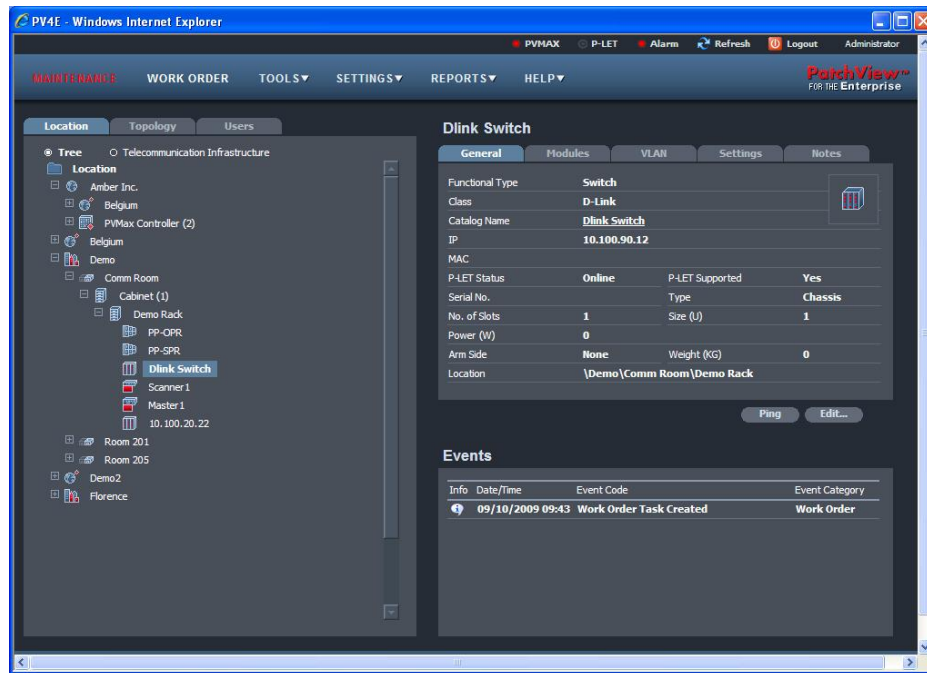


Figure 152 - PV4E Maintenance Screen

Once the switch has been scanned, the P-LET Status is Online.

2. Click the *Modules* tab:

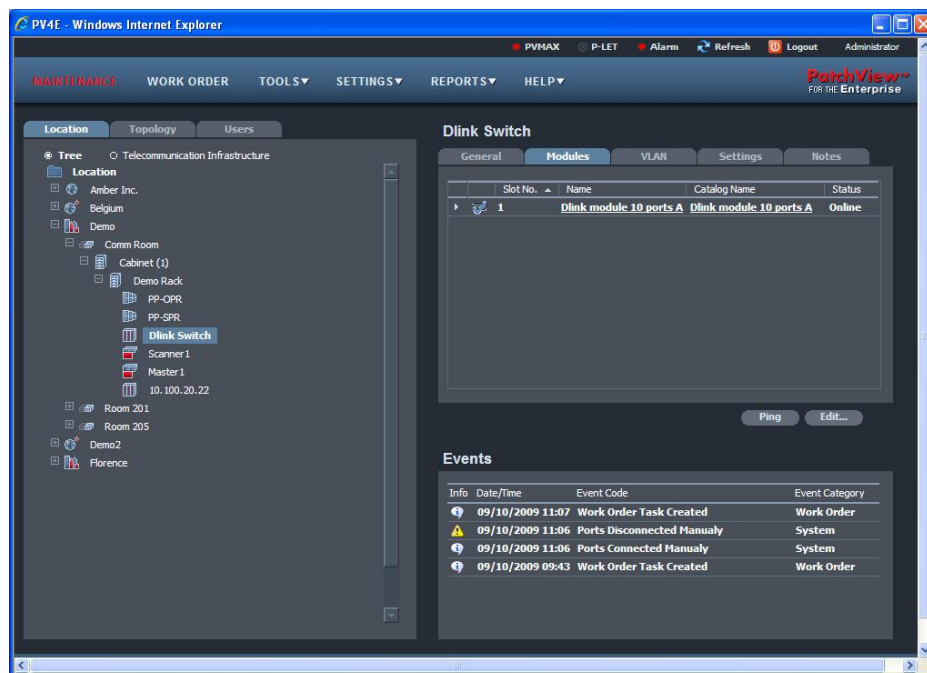


Figure 153 - PV4E Maintenance Window (Location Tab).

If a module has not been manually added, it is automatically added to the system as an 'Unknown module' with the number of ports detected on the switch. Setting Up Projects PatchView for the Enterprise 4.1

3. Click the hyperlink of a module from the list. The *View Inventory Module* dialog is displayed

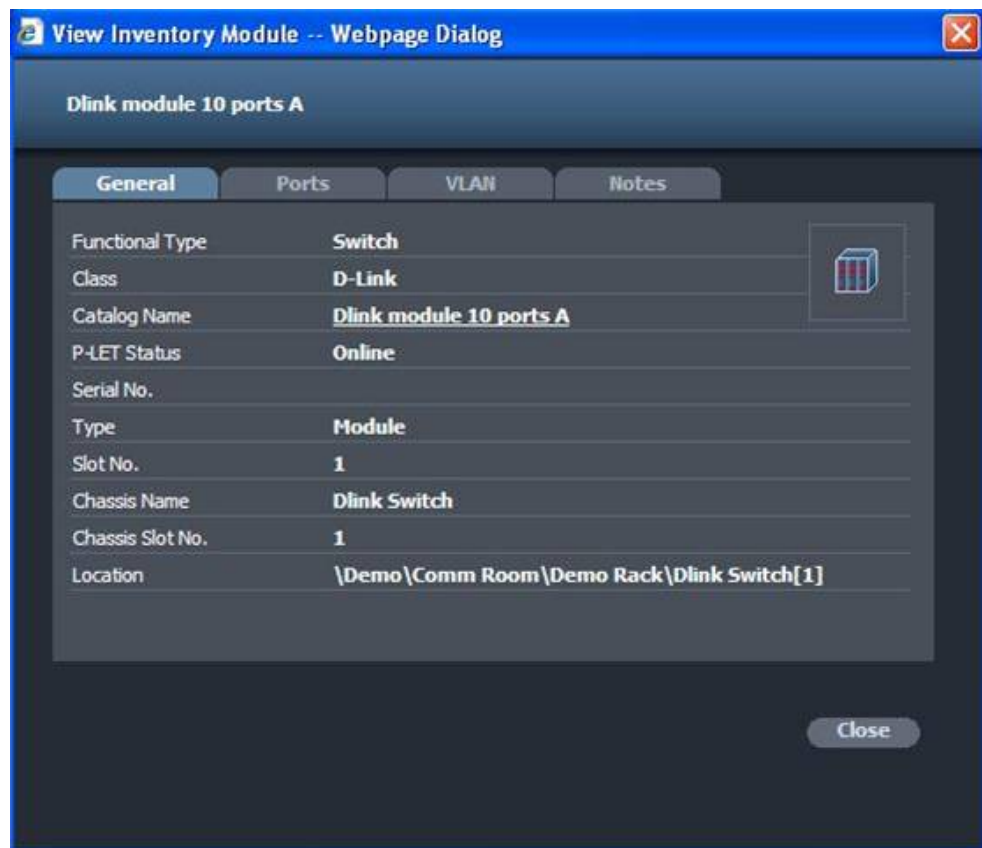
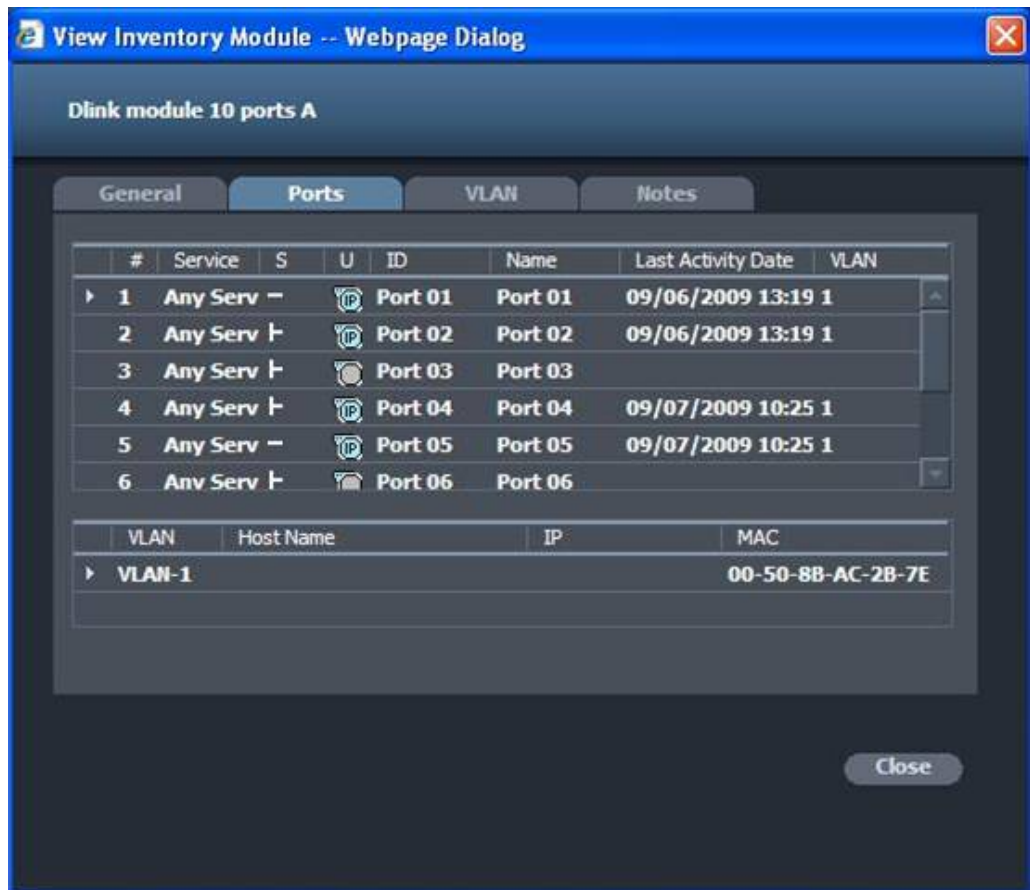


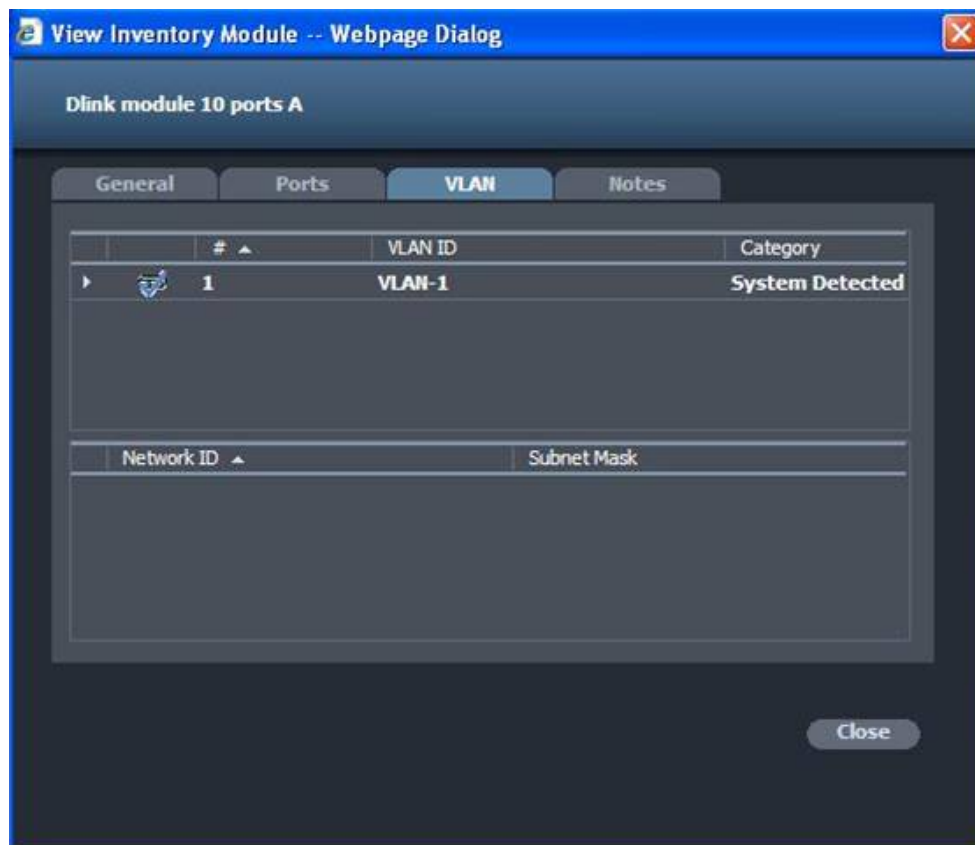
Figure 154 - New Inventory Module

4. From the *View Inventory Module* dialog, click on the Ports tab. The ports are displayed, as well as the VLANs defined on the switch with the device MAC address.

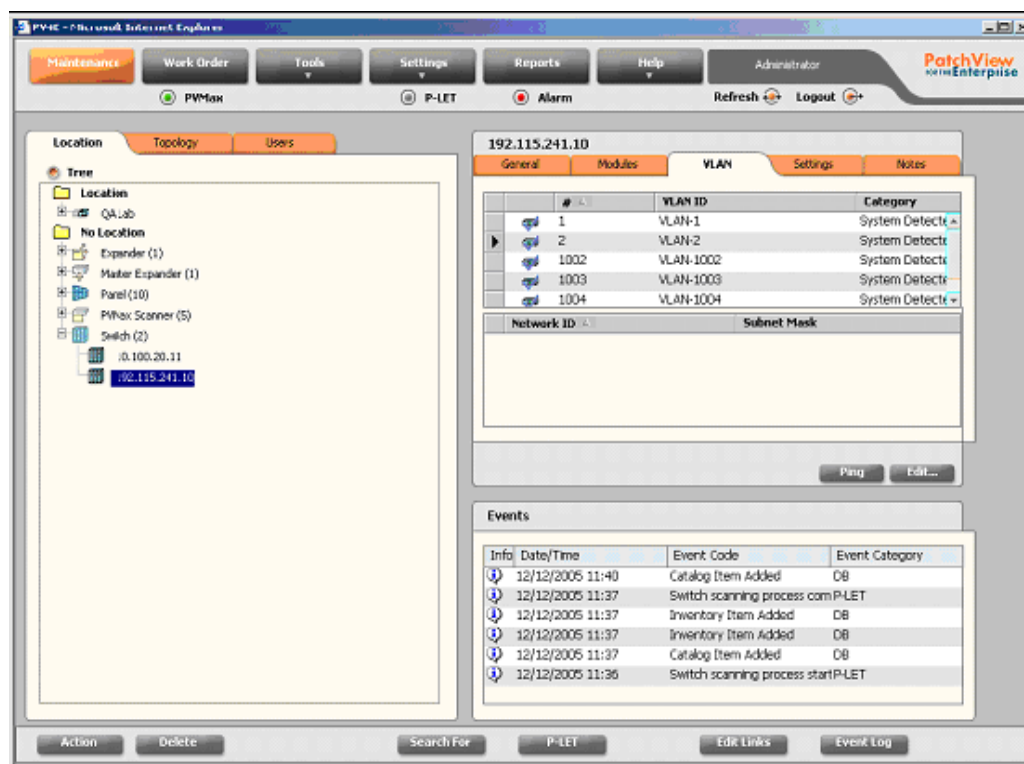
When a switch is detected, all MAC addresses of the devices on the onnected switch ports will be recognized on the switch.



5. From the *View Inventory Module* dialog, click on the VLAN tab. The VLANs that are defined on the switch are displayed.



6. Click **Close** to return to the main properties view of the switch.
7. From the main screen, click on the VLAN tab. The VLANs in use are displayed.



## Port Assignment

You can edit the port assignments of a switch. The Edit Port Assignment window is divided to two parts: Inventory Switch Port and P-LET Detected Port listing ports that are unassigned. All inventory ports will be displayed according to the modules to which they belong. Based on this list, you can correlate the switch ports retrieved by the DefaultSwitch Driver to the physical configuration (modules/ports).

**Note:**

*To select a list of consecutive ports, left click the first port, hold down the <Alt> key and left-click the last port. To select ports that are not consecutive, hold down the <Ctrl> key and left-click on each port.*

During automatic switch detection, the assignment of the modules is done automatically by the application to Slot 0. The "real" slots are not identified.

If there are ports that you do not want to assign (e.g. trunk port), you can move the selected ports to the P-LET Detected Port column and choose Ignore Port.

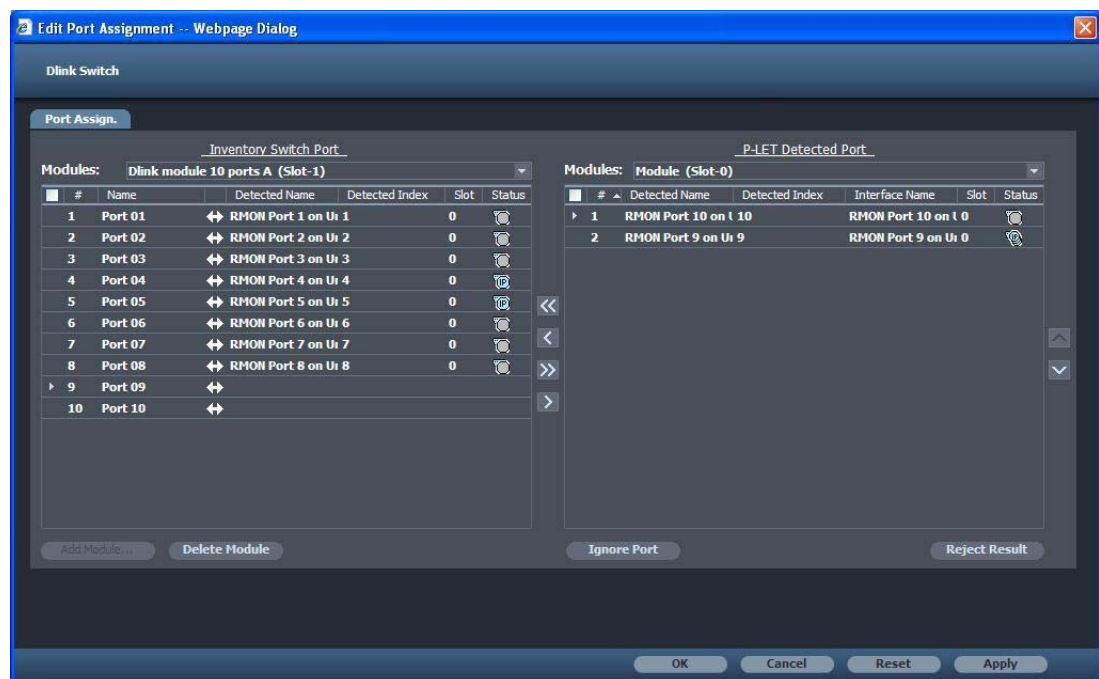
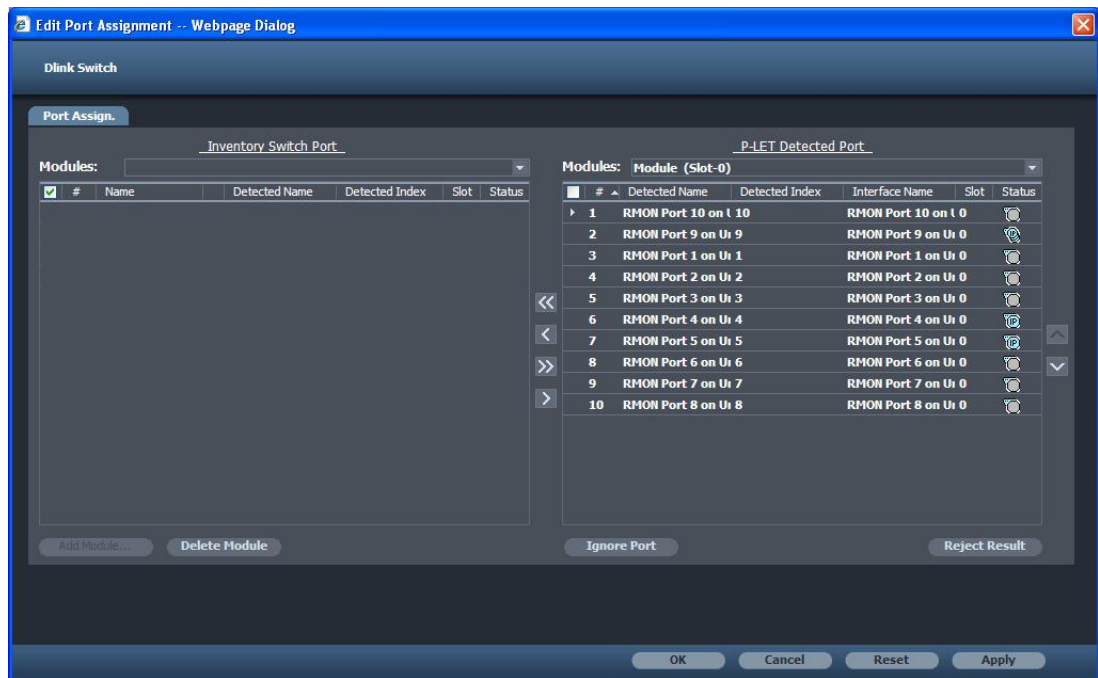


Figure 155 - Edit Port Assignment Window (Lab Switch)

> **To change port assignment:**

1. Select a switch from the tree.
2. Click **Edit** appearing below the switch properties frame. The *Add/Edit Inventory Switch* dialog appears.
3. Click Assign. The Edit Port Assignment dialog appears:



4. Click **Add Module** to display the Add Module dialog.
5. Click **Delete Module** to delete the selected module.
6. Click **Reject Result** to reject the search results from the P-LET. Once you reject the results, the switch status goes back to not scanned, or unassigned.

## Manually Adding and Scanning a Switch

When manually adding a switch to the inventory, the real physical switch structure should be defined. The offline switch is then scanned.

### > To manually add a switch to inventory:


1. From the Location tab, right-click on the No Location node in the tree.
2. Choose Add Network Equipment>Switch>Add Manually. The *Add/Edit Inventory Switch* dialog is displayed



**Add/Edit Inventory Switch -- Webpage Dialog**

**General** | Modules | VLAN | Settings | Notes

Name:

Functional Type:  

Class:

Catalog Name:

IP:

MAC:

Type:

No. of Slots:

Size (U):

Serial No.:

Power (W):

Arm Side:

Weight (KG):

Location:

*Figure 156 – Add/Edit Inventory Switch*

3. Type a name in the Name field for the switch you want to add.
4. Choose the class name from the Class drop-down menu.



**Add/Edit Inventory Switch -- Webpage Dialog**

**General** | Modules | VLAN | Settings | Notes

Name:

Functional Type:

Class:

Catalog Name:

IP:

MAC:

No. of Slots:

Serial No.:

Arm Side:

Location:

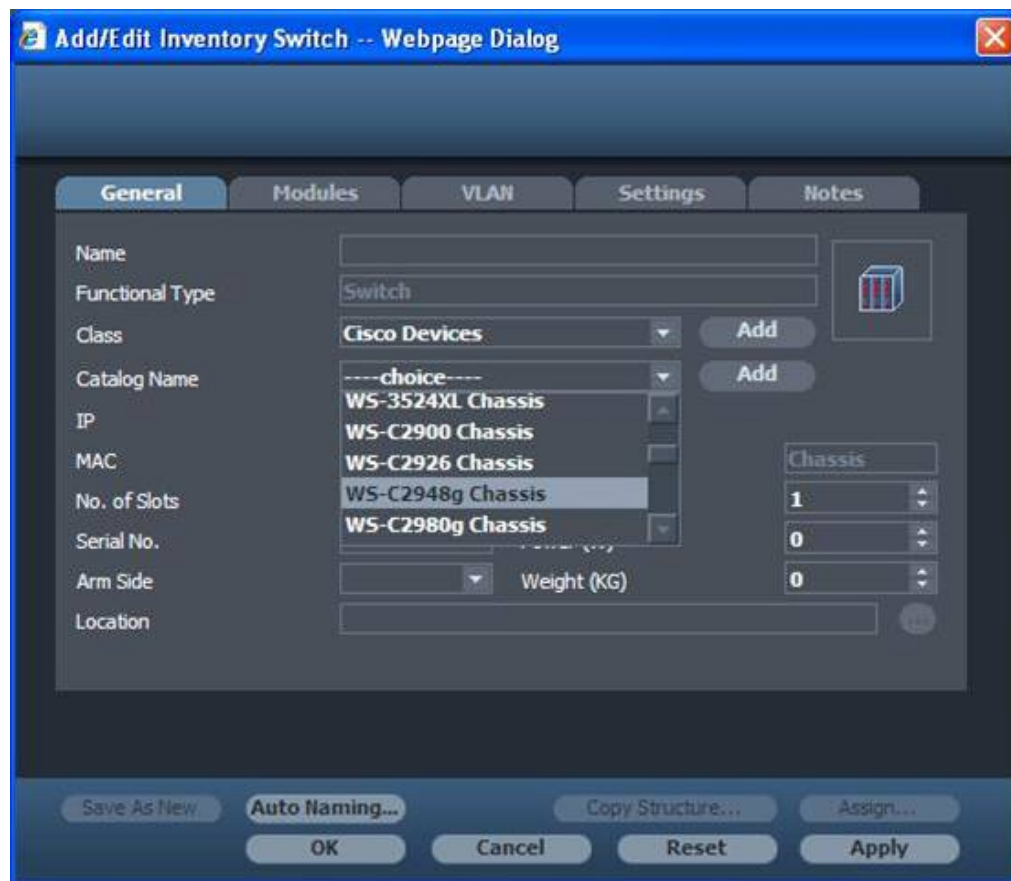
Chassis:

Power (W):

Weight (KG):

5. Choose the catalog name from the Catalog Name drop-down menu and click **Apply**.

If the preferred switch does not exist in the drop-down menu, add it to the catalog. See *Adding, Editing and Deleting Items* for further information on adding to the catalog.



6. Select the Modules tab and click Add... to add modules and chassis to the switch structure. The *Add/Edit Inventory Module* dialog is displayed.
7. Type a name in the Name field for the module you want to add.
8. Choose the class name from the Class drop-down menu.

**Add/Edit Inventory Module -- Webpage Dialog**

**General** | Ports | VLAN | Notes

Name:

Functional Type:

Class:

Catalog Name:

Serial No.:

Slot No.:

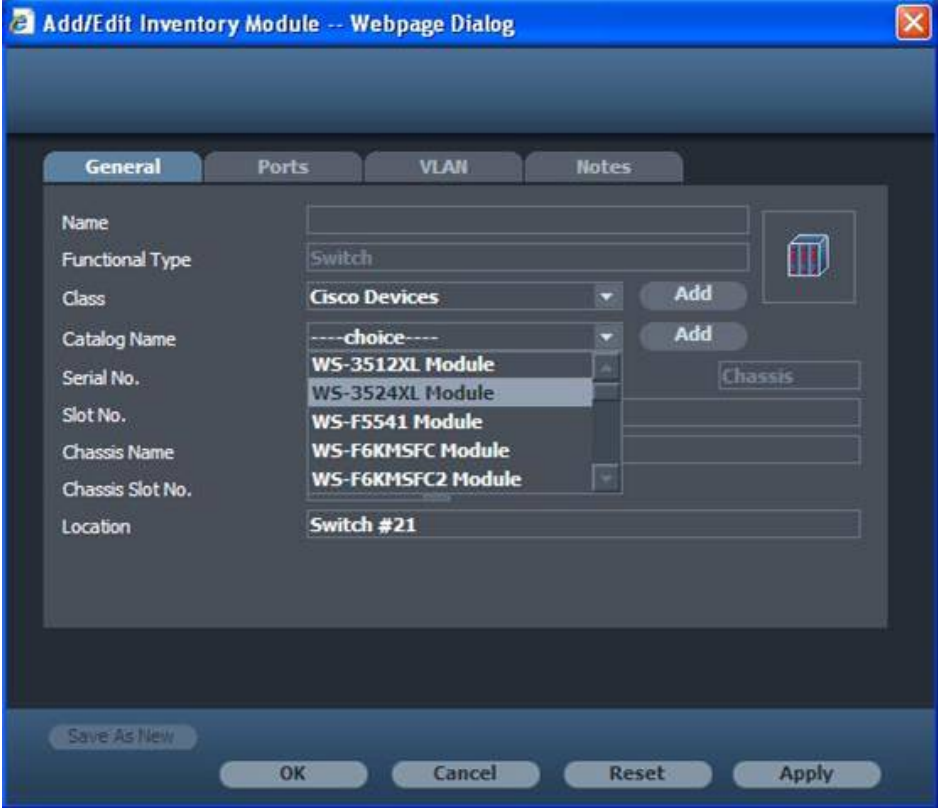
Chassis Name:

Chassis Slot No.:

Location:

9. Choose the catalog name from the Catalog Name drop-down menu.

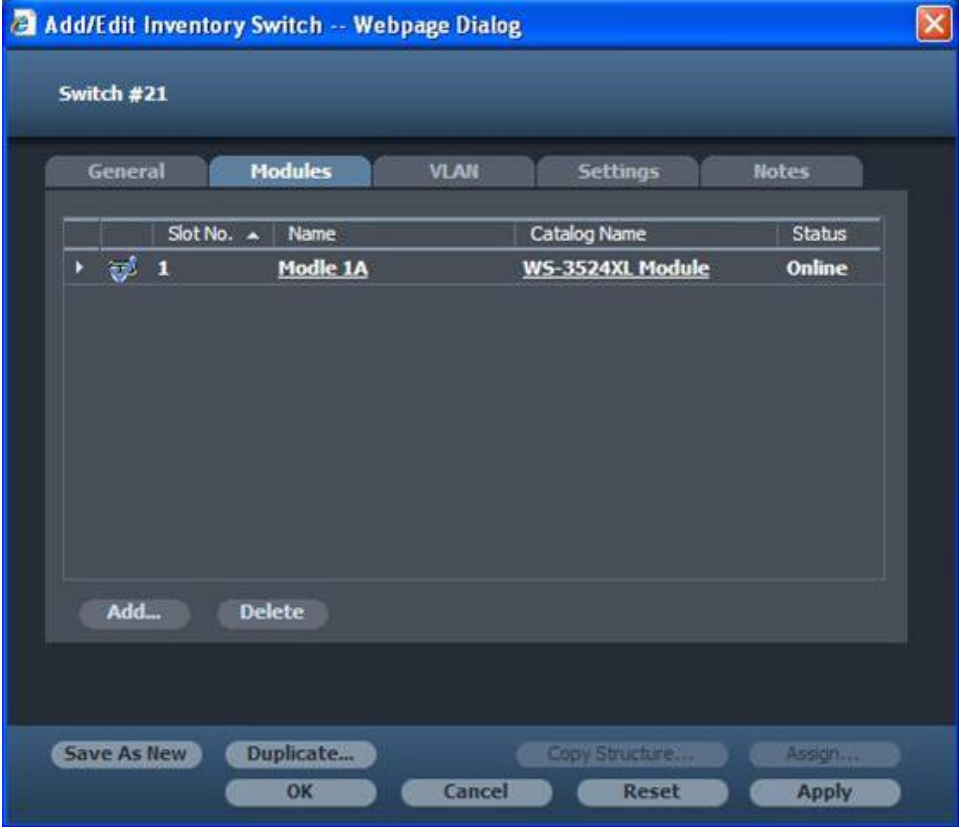
If the preferred module does not exist in the drop-down menu, add it to the catalog. See *Adding, Editing and Deleting Items* for further information on adding to the catalog.



The screenshot shows the 'Add/Edit Inventory Module -- Webpage Dialog' window. It has four tabs: 'General', 'Ports', 'VLAN', and 'Notes'. The 'General' tab is active. It contains several input fields and a dropdown menu. The 'Name' field is empty. The 'Functional Type' is set to 'Switch'. The 'Class' is set to 'Cisco Devices'. The 'Catalog Name' is set to 'WS-3524XL Module'. The 'Serial No.' is empty. The 'Slot No.' is empty. The 'Chassis Name' is empty. The 'Chassis Slot No.' is empty. The 'Location' is set to 'Switch #21'. There are 'Add' buttons next to the 'Class' and 'Catalog Name' fields. At the bottom, there are buttons for 'Save As New', 'OK', 'Cancel', 'Reset', and 'Apply'.

Field	Value
Name	
Functional Type	Switch
Class	Cisco Devices
Catalog Name	WS-3524XL Module
Serial No.	
Slot No.	
Chassis Name	
Chassis Slot No.	
Location	Switch #21

10. Click Apply and click **OK**. The *Add/Edit Inventory Switch* dialog is re-displayed with the defined module appearing in the list on the Modules tab.



The screenshot shows the 'Add/Edit Inventory Switch -- Webpage Dialog' window. It has five tabs: 'General', 'Modules', 'VLAN', 'Settings', and 'Notes'. The 'Modules' tab is active. It displays a table with the following data:

Slot No.	Name	Catalog Name	Status
1	Module 1A	WS-3524XL Module	Online

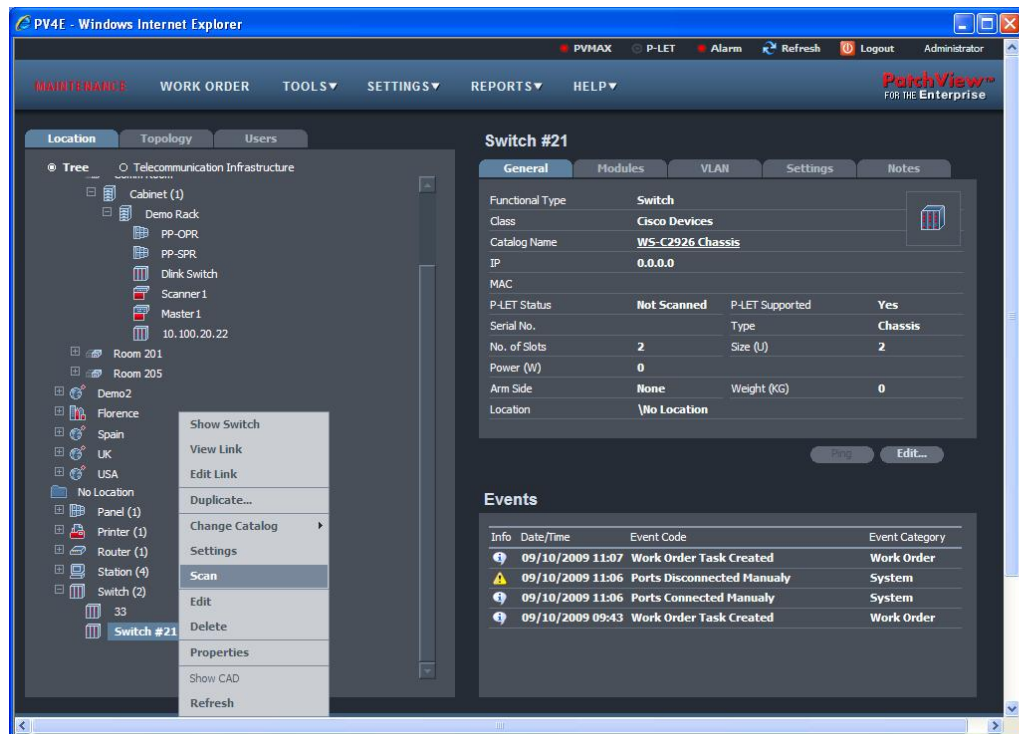
Below the table are 'Add...' and 'Delete' buttons. At the bottom of the dialog are buttons for 'Save As New', 'Duplicate...', 'Copy Structure...', 'Assign...', 'OK', 'Cancel', 'Reset', and 'Apply'.

Figure 157 –Add/Edit Inventory Switch

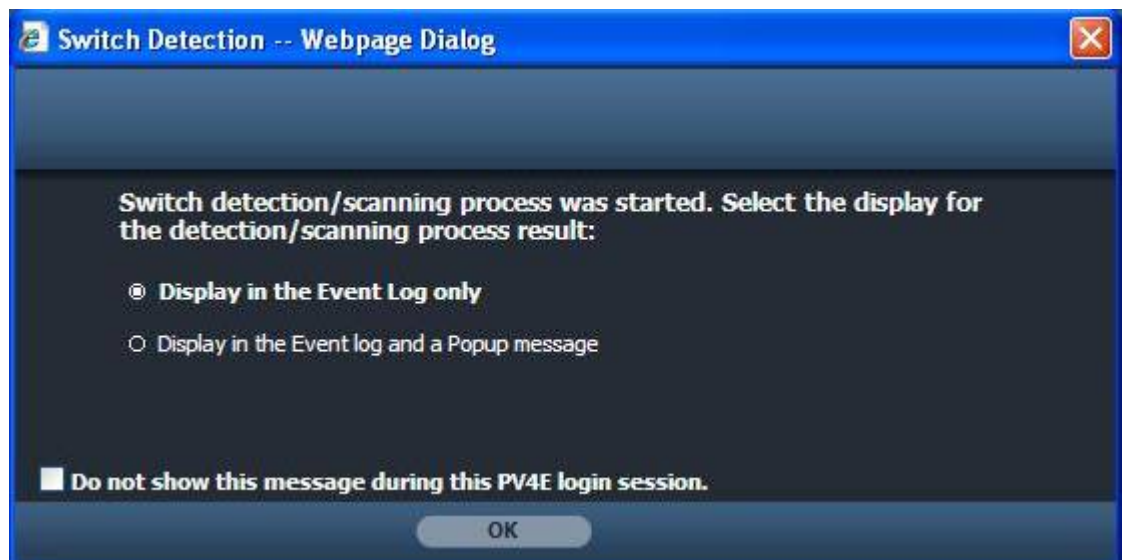
11. Click **OK**. The defined switch is added to the Location tree.

> **To scan an offline switch:**

1. From the Location tree listed under the Switch node, right-click on the switch you defined and choose Scan.



2. The Switch Detection dialog is displayed. Select the display you want for the scanning process result and click Yes.



The scanning results are displayed in the Event log.

**Note:**

*You can now edit the port assignments of the switch.*

*See Port Assignment for more information.*

## Adding a Router to Location

Routers will be detected when P-LET is run.

### > To add a Router to Location

1. Select and right click on the Rack or the Room in the Location Tree where the Router is to be assigned.  
A pull-down menu will appear.
2. Select Add Network Equipment and Router.  
The *Add/Edit Inventory Router* dialog box opens.

Figure 158 - Add/Edit Inventory Router dialog

3. Type in the name of the Item.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
4. Select the Class by clicking on the button (optional).
5. Select the Catalog Name by clicking on the button.
6. Change the location (optional). See *To change the Location of an Item*.
7. Fill in the IP address if known.

### **Note:**

*The MAC Address will be added automatically when the system is scanned by P-LET.*

8. Click **OK** to proceed.



## Adding PBX or HUB to Location

PBX and HUBs are not discovered by P-LET. The items can be inserted manually if required.

> **To add a PBX, or HUB to Location**

1. Select and right click on the Rack or the Room in the Location Tree where the Network Equipment is to be assigned.  
A pull-down menu appears.
2. Select **Add Network Equipment** and open one of the Items.  
The *Add/Edit Inventory PBX/HUB* dialog box opens.

Figure 159 - Add/Edit Inventory PBX/HUB dialog

3. Type in the name of the Item.  
The Auto Naming feature can be used. See Auto Naming Feature.
4. Select the Class by clicking the down arrow (optional).
5. Select the Catalog Name by clicking the down arrow.
6. Change the location (optional). See To change the Location of an Item .
7. Select the Module Tab and add the necessary information.
8. Click **OK** to proceed.

## Adding Terminal Equipment

All Terminal Equipment, excluding POTS telephones will be discovered by the system when scanned with P-LET.

Terminal Equipment is divided into five Functional Types. These are:

- IP Phone
- KVM Device
- Printer
- Station
- Telephone

IP Phones, Printers and Stations are all linked via outlets or link terminator panels to the switches. The P-LET Module will automatically create, link and insert them in the correct location in the Location Tree, if full links have been defined. They are automatically discovered if the subnet is accessible and listed. It is only necessary to define these elements individually if you are not using P-LET. (Refer to Discovery Module Chapter for more information).

POTS telephones need to be listed individually if a record of them is required.

When assigning Terminal Equipment, owners/users can be defined for each piece of equipment. It is necessary to define the users in the User Tree in order to access the list of Users. See *Users*.

## Adding Terminal Equipment to Location

### > To add Terminal Equipment to Location

1. Select and right click on the Location Type in the Location Tree where the Terminal Equipment is to be assigned.  
A pull-down menu appears.
2. Select Add Terminal Equipment and open one of the Items.  
The *Add/Edit Inventory* dialog box opens.



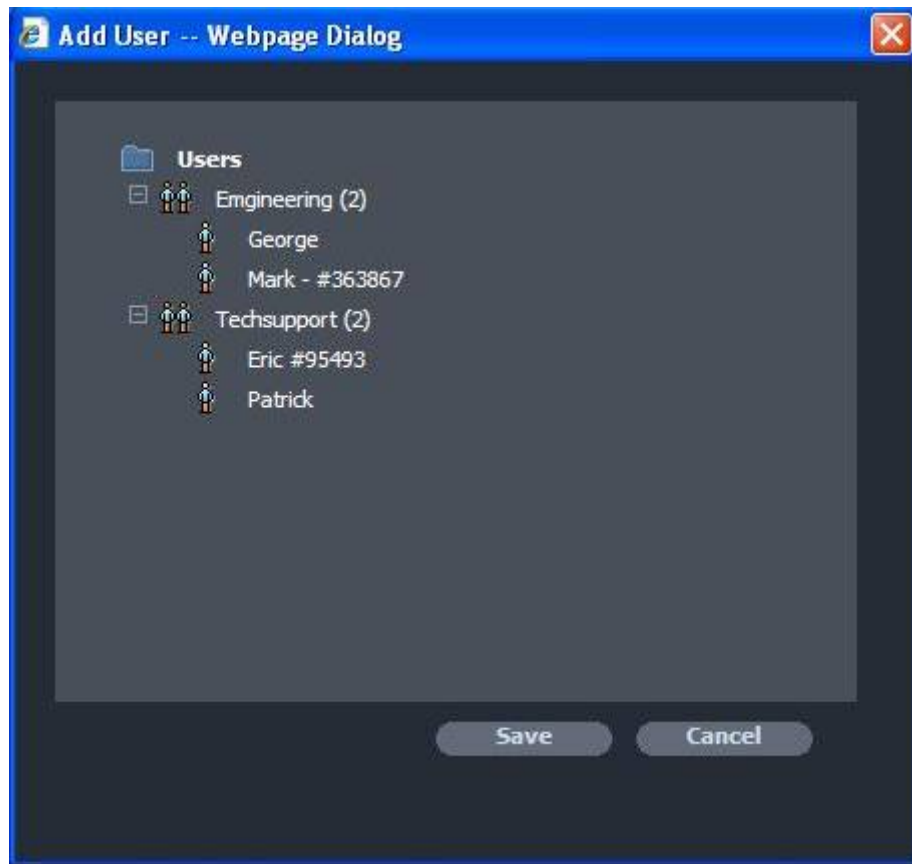
Figure 160 - Add/Edit Inventory dialog

3. Type in the name of the Item.  
The Auto Naming feature can be used. See *Auto Naming Feature*.
4. Select the Class by clicking the drop-down arrow (optional).
5. Select the Catalog Name by clicking the drop-down arrow.
6. Change the location (optional). See *To change the Location of an Item*
7. Select the Owner Tab to add the Owner details (optional).

**Tip:**

*This can be done at a later stage if Users have not been defined. See section - Users.*

8. Click **Add** to add a User. The User dialog opens.



*Figure 161 -User dialog*

9. Expand the tree and select the User.
10. Click **Save** to return to the *Add/Edit Inventory* dialog.  
The Owner's name appears in the fields.

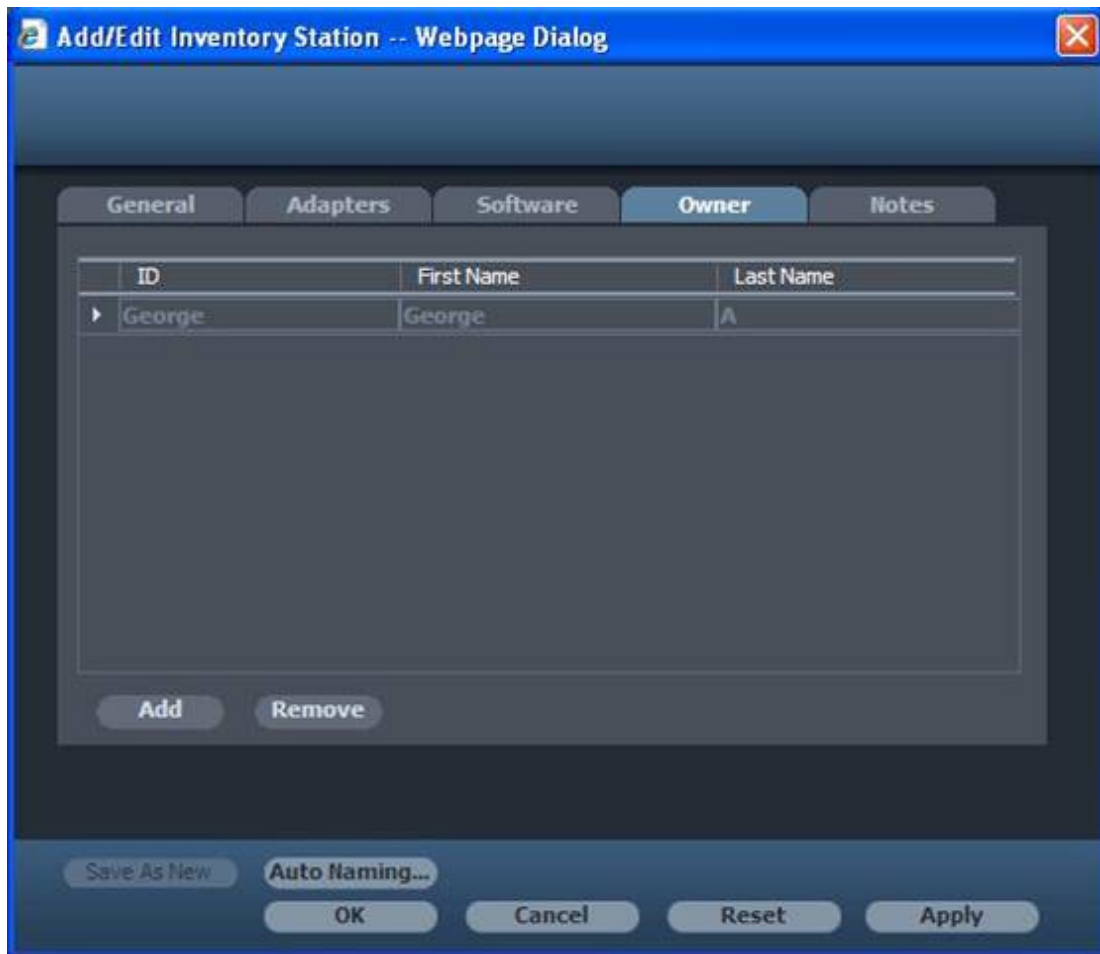


Figure 162 - Add/Edit Inventory dialog

11. Select the Software tab to change the Software information (optional).
12. Select the Adapters tab to change the Adapter information (optional).
13. Click **OK** to proceed.

## No Location

### Adding Items to No Location

All Items can be added to the No Location section. These can later be assigned to their specific location either directly through the Location Tree or through *Topology*.

Items are added to the No Location folder in the same way as they are assigned to a specific location in the Location folder.

Multiple items can be named and added to No Location using the Auto Naming feature.

No Location is also used as an inventory of stock items that have not been assigned to a specific location.

## Topology

The *Topology* Tree is located in the Maintenance Module of PV4E. This window has three options. The PV, PVMaX, and Subnet. This section deals with the

*Topology* of PVMax. Subnet is explained in the **Viewing the Subnets** on page 392.

*Topology* is defined according to the logical hierarchical structure of the essential equipment needed to operate PV4E. It differs from the Location Tree that shows the logical hierarchical structure of the network.

If a Master Scanner has been defined in the location tree it automatically appears in the PV *Topology*. Master Scanners, Security Controllers, Patch Panels and Terminal\ Network Equipment that have been assigned to locations in the Location tree are added into the *Topology* Tree from the existing list and placed in their logical order.

If a Master has been defined in the location tree it automatically appears in the PVMax *Topology*. Masters, Expanders, Master Expanders, Scanners, Patch Panels, and Terminal\ Network Equipment that have been assigned to locations in the Location tree are added into the *Topology* Tree from the existing list and placed in their logical order.

Items can be added directly to *Topology* without assigning them first to Location. These are then assigned by default to No Location or if specified to their specific location.

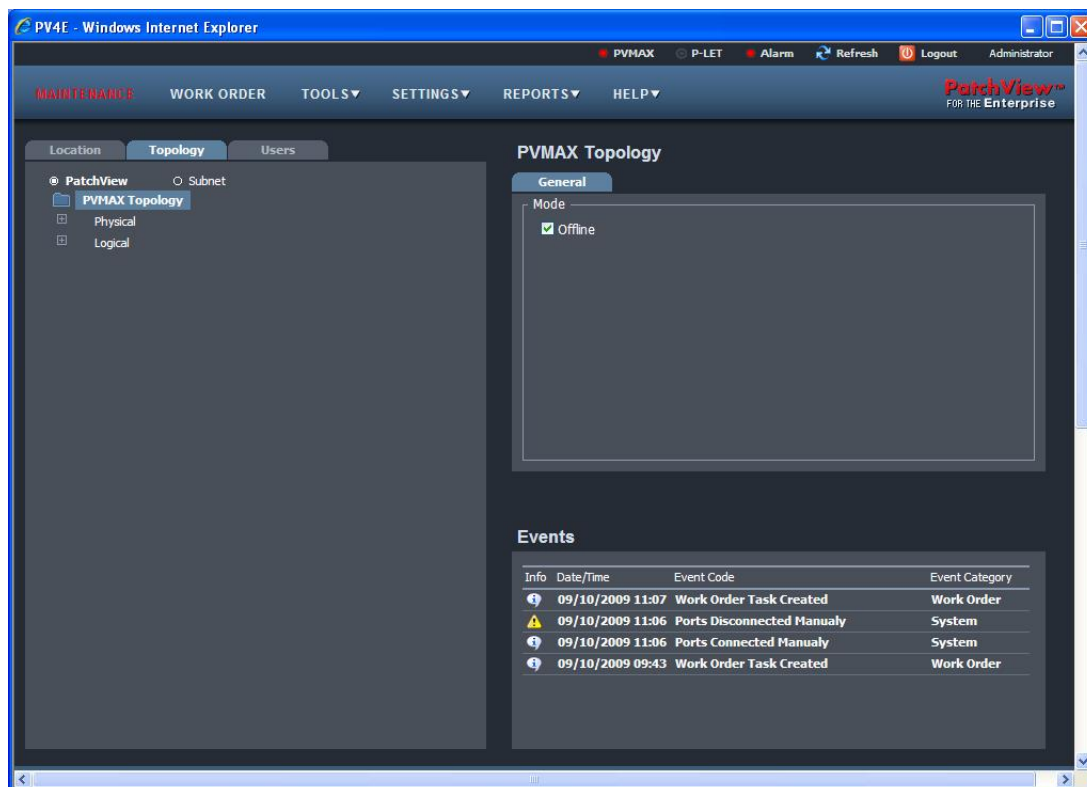


Figure 163 -Topology Window

## Detecting New Hardware in PVMax *Topology*

Once the Master and its associated hardware have been physically installed, PVMax can automatically determine what hardware is connected to a Master. PVMax must be in online mode to detect the new hardware. PVMax can only detect new PVMax panels. Non-PVMax panels must be added to the *Topology* tree. For instructions, refer to *Topology* on page 299.

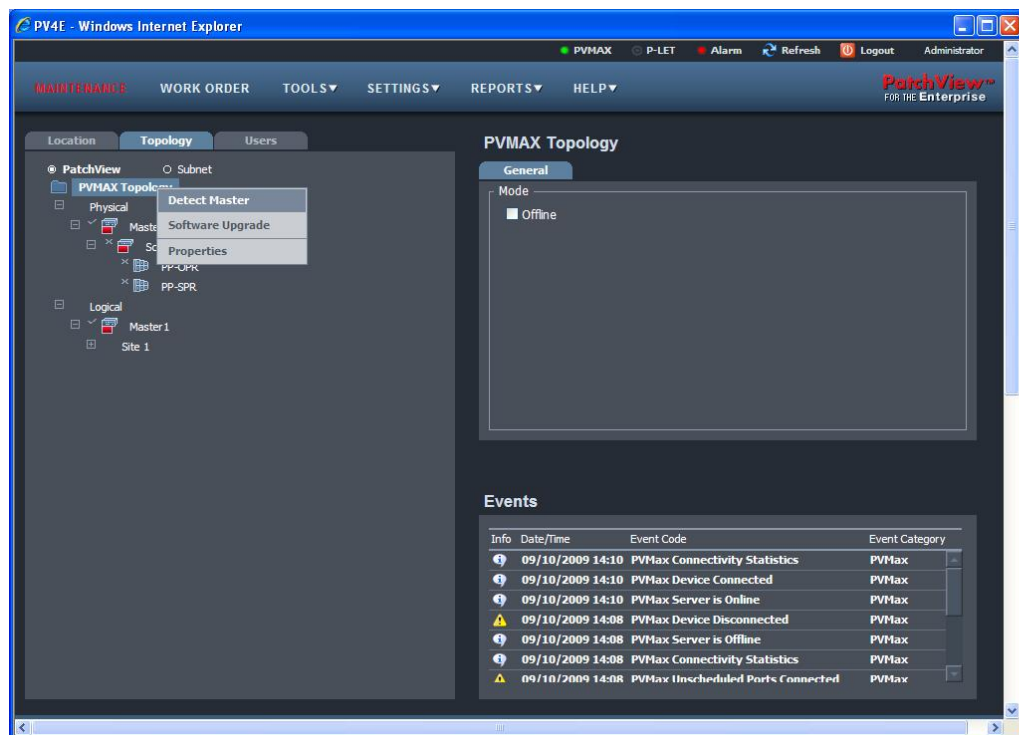
> **To detect new hardware**

1. Select and click PVMax *Topology*.  
The *Edit Topology* dialog box opens.



Figure 164 - PVMax Topology Offline

2. Click **Edit**.  
The Setting *Topology* dialog box opens
3. Uncheck the offline box
4. Click on the **OK** button  
The PVMax Indicator button is now green



*Figure 165 - PVMax Topology Online*

5. Select and right click PVMax *Topology* and select Detect Master from the drop-downlist

The *Auto Detect PVMax Master* dialog box opens.

*Figure 166 - Auto Detect PVMax Master Dialog*

6. Enter the following information

Settings	Default Parameter	Explanation
IP Address		The IP Address of the new Master
Get Community	Public	The string used as the community name in SNMP Get and Get Next request
Set Community	Public	The string used as the community name in SNMP Set and Set Next requests
Timeout (mseconds)	25	The number of milliseconds after which the PVMas waits for the Master. For detecting new hardware, set the parameter to at least 200.
Retries	1	The number of times, within the timeout period, the system attempts to receive an answer to a request from a Master before reporting a communication error.

7. Click **Detect**.

As PVMax detects each device (Expander, Master Expander, Scanner, etc.), the Events Log is updated with a new event. Once all of the devices are detected, they appear in the *Topology* Tree with question marks over their icons. This indicates that although the devices have been detected, they have not yet been added to the inventory database. You must add these devices to the inventory database. To add the devices to the inventory database, follow the instructions in *To enter new hardware in the inventory database* (see *To Enter New Hardware in The Inventory Database*).

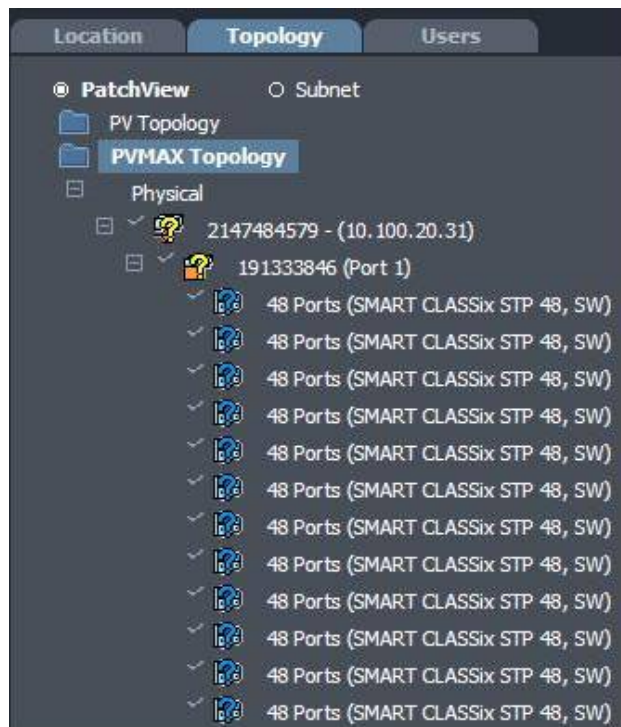


Figure 167 - Example of Newly Detected Panels

8. Click **Close**.

The Detect Master dialog will close.

> **To enter new hardware in the inventory database**

1. Right click in the *Topology* Tree and select Insert from the dropdown list.

The Insert dialog box opens.

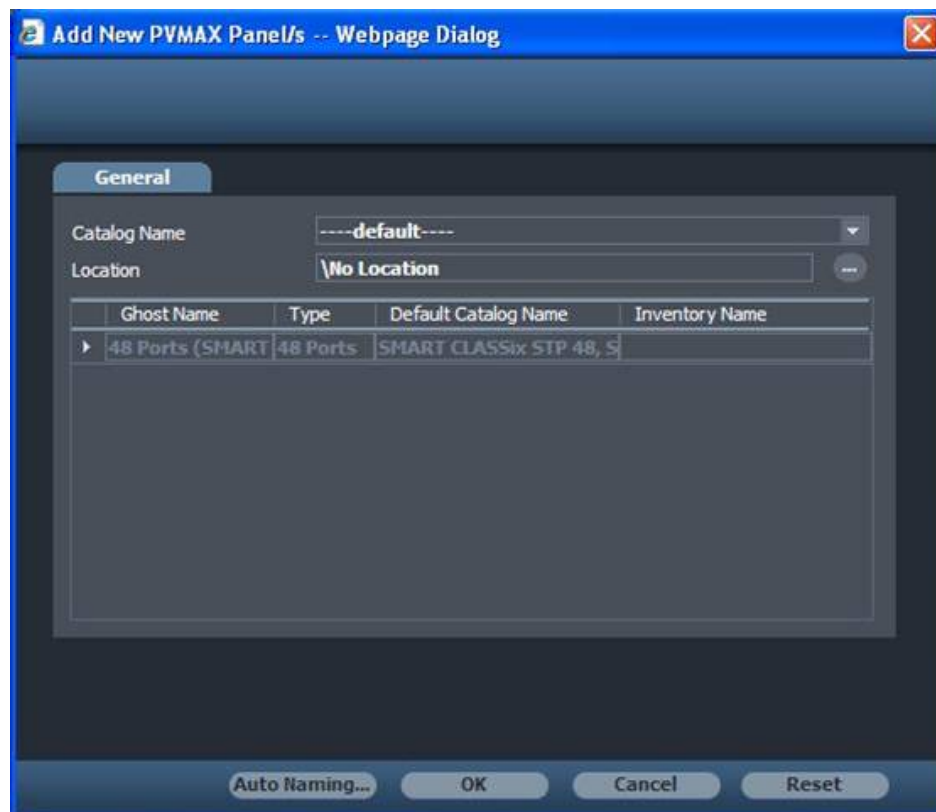


Figure 168 - Add New PVMax Panels dialog

2. Enter the catalog name, location, and inventory name. It is not necessary to enter the location. If the location is not entered, the default value is No Location.
3. Click **OK**.

The device is added to the inventory database. The device's icon no longer appears with a question mark.

**> To enter multiple new hardware items in the inventory database at one time**

1. Press the ALT key and click multiple in the *Topology* Tree. Right click the selected icons and select Insert from the drop-down list.

The Insert dialog box opens:



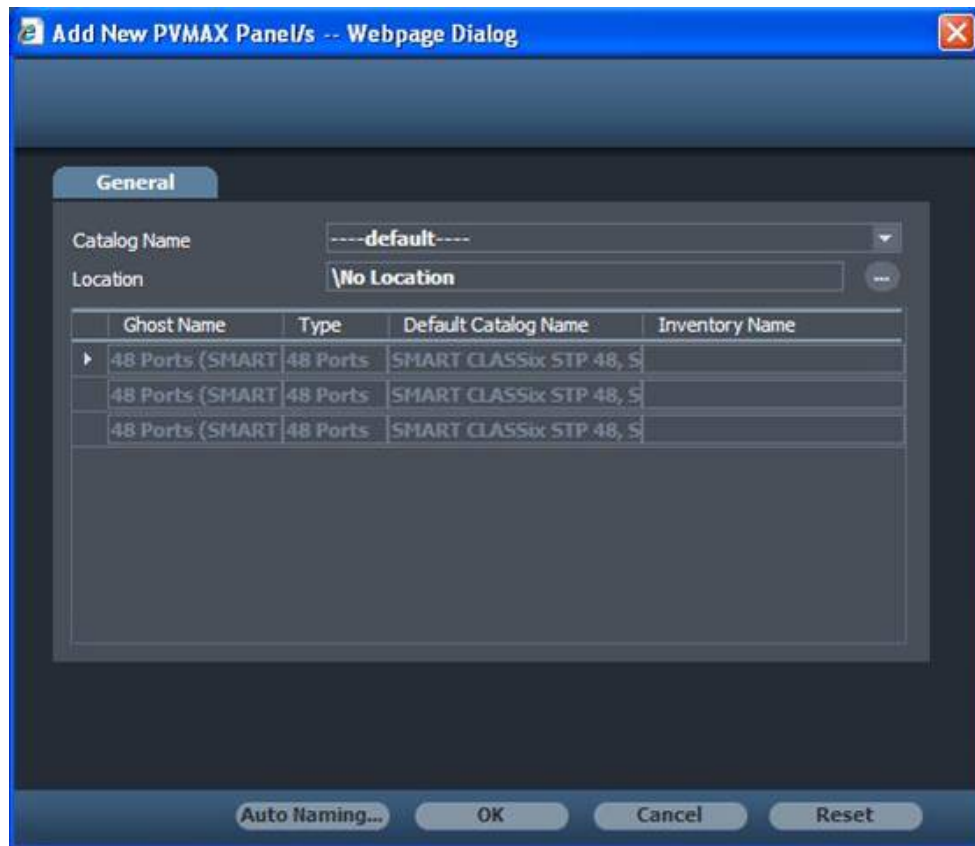


Figure 169 - Add New PVMax Panels

2. Enter the catalog name and location. It is not necessary to enter the location. If the location is not entered, the default value is No Location. Note that all items must have the same catalog name and location.
3. Enter the inventory names. To use the Auto Naming facility for multiple names, see *Auto Naming Feature*.

The items will be updated with their names.

4. Click **OK**.

The devices are added to the inventory database. The devices' icons no longer appear with a question mark.

## Adding, Updating, and Removing Equipment in PVMax Topology

In the *Topology* Tree, Master, Expanders, Master Expanders, PVMax Scanners, and Panels can be added to the inventory database. These devices can be added after the original network has been established, as the network grows.

Expanders, Master Expanders, PVMax Scanners, and Panels can be physically updated in the network. You can move an existing device to a new physical location in the network or replace an existing device in the network with a new device. You can determine if an existing device has been physically removed from the network.

Expanders, Master Expanders, PVMax Scanners, and Panels that have been physically removed from the network should be removed from the inventory

database. This will remove them from the *Topology* Tree, but leave them in their position in the Location Tree.

Masters cannot be removed from the *Topology* Tree, and can only be deleted in the Location Tree if there are no Network items connected to them in the *Topology* Tree.

Newly connected devices (Masters, Master Expanders, Expanders, PVMax Scanners, and Panels) that are installed after the main system has been installed are automatically detected in the *Topology* Tree.

**Tip:** It is recommended to insert the Masters, Master Expanders, Expanders, PVMax Scanners, and Panels in their correct order in the *Topology* Tree. Unlike the Location Tree, it is not possible to move the devices in the *Topology* Tree.

**> To add a new device**

1. Place the new device in its physical location in the network and attach it to the appropriate existing devices.

An event description appears in the Events pane.

2. Click Refresh.

The new device appears in the *Topology* Tree with a question mark over its icon. This indicates that while the device has been detected, it has not yet been added to the inventory database. You must add the device to the inventory database.

3. To add the device to the inventory database, follow the instructions in To enter new hardware in the inventory database on page 217.

**> To move an existing device**

1. Remove the device from its current physical location in the network.

An event description appears in the Events pane.

2. Place the device in its new physical location in the network and attach it to the appropriate existing devices.

An event description appears in the Events pane.

3. Click Refresh.

The device appears in the *Topology* Tree in its new location.

**> To replace an existing Scanner or Expander**

1. Remove the device from its current physical location in the network.

An event description appears in the Events pane.

2. Place the new device in the same physical location in the network and attach it to the appropriate existing devices.

An event description appears in the Events pane.

3. Right click the device's icon in the *Topology* Tree and select Replace from the drop down list.

The new device appears in the same location in the *Topology* Tree. All of the links related to the old Scanner or Expander apply to the replacement Scanner or Expander.

**> To show an existing Panel**

1. Right click the panel icon in the *Topology* Tree and select Show Panel from the dropdown list.

A picture of the panel will appear, showing all of the ports on the panel.

**> To determine if an existing device has been removed**

1. Right click the device's icon in the Topology Tree and select AutoRecognize from the drop-down list.
2. The device appears in the Topology tree with an 'X' next to its icon. This indicates that while the device has been uninstalled, it is still in the inventory database.

Or:

3. If you are unsure which existing device has been uninstalled, right click a higher level device's icon in the Topology Tree and select AutoRecognize from the drop-down list.
4. Any devices under the higher level that have been unplugged appear in the Topology tree with an 'X' next to their icons. This indicates that while the devices have been unplugged, they are still in the inventory database.

**> To remove an existing device**

1. Remove the device from its current physical location in the network.  
An event description appears in the Events pane.
2. Click Refresh.

The device appears in the *Topology* tree with an 'X' next to its icon. This indicates that while the device has been physically removed from the network, it has not yet been deleted from the inventory database. You must delete the device from the inventory database.

3. Right click the device's icon in the *Topology* Tree and select Remove from the dropdown list.
4. Right click the device's icon in the *Topology* Tree and select Delete from the dropdown list.

The device no longer appears in the *Topology* tree.

## Users

The User Tree is found in the Maintenance Module and represents the hierarchical structure of the users in the company's enterprise. There are three levels of definition available in the tree. These are:

- Group
- Department
- User

## Adding, Editing, Moving and Deleting Users

A Group, Department and User can be added to the User Tree and edited at any time. These can be deleted as long as no Users are listed in either the Groups or the Departments.

Users can be moved between the departments using the Edit mode.

**Note:**

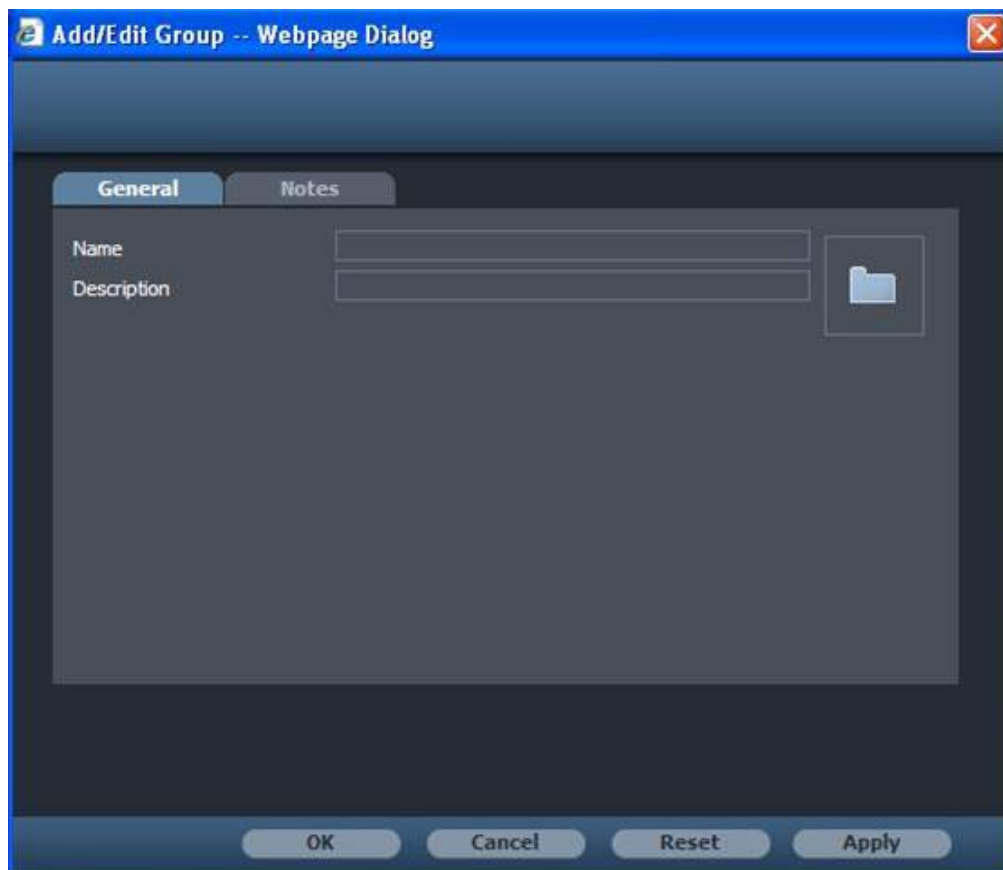
*In order to assign Terminal Equipment to their Location, Users must be defined. See Adding Terminal Equipment.*

### Adding a User Group

There is no limit to the amount of User Groups that can be defined.

> **To add a User Group**

1. Select the Users Tab in the Maintenance Module.
2. Select and right click on the User Folder.  
A pull-down Menu will appear.
3. Select and click on Add Group.  
The *Add/Edit Group* dialog will open.



*Figure 170 - Add/Edit Group dialog*

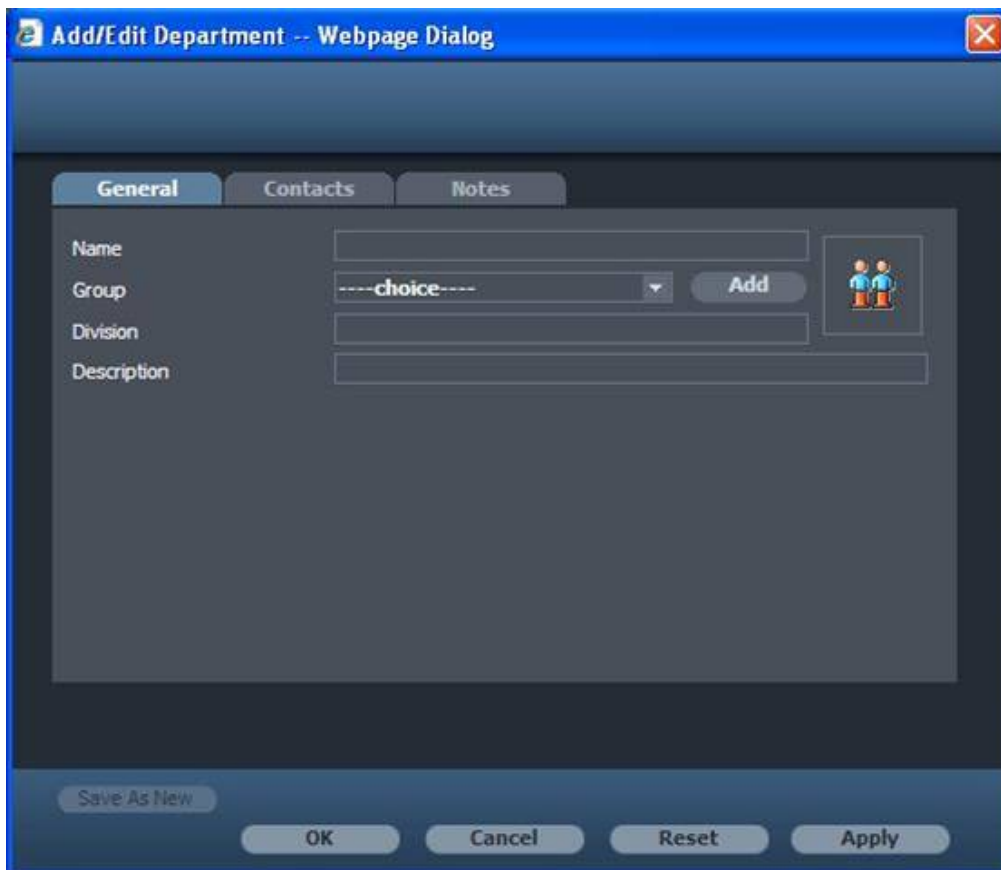
4. Fill in the Name.
5. Fill in Description (optional).
6. Click **OK** to proceed.

## Adding a Department

Departments can be added directly to the User Folder or defined within a Group

> **To add a Department**

1. Select and right click on either the User Folder or the required Group.  
A pull-down Menu will appear.
2. Select and click on Add Department.  
The Add/Edit Department dialog will open.



*Figure 171 - Add/Edit Department dialog*

3. Fill in the Name.
4. Fill in Description (optional).
5. Select or Add a Group.
6. Click on the Contacts field to add a contact name (optional).
7. Click **OK** to proceed.

## Adding a User

Users can be added directly to the User Folder or defined within a Group or Department.

> **To add a User**

1. Select and right click on either the User Folder or the required Group or Department.  
A pull-down Menu will appear.

2. Select and click on Add User.  
The Add/Edit User dialog will open.

Figure 172 - Add/Edit User dialog

3. Fill in the ID, First Name, Last Name and Title fields.
4. Select or Add a Department.
5. Click **OK** to proceed.

**Note:**

*The Equipment will be filled in by the system if this is defined when the Item/Equipment is added to Catalog.*

## Import/Export Feature

The Import/Export feature allows you to import and export off-line data from and into the PV4E database. You can import the data either from a CSV file created by the customer or from a temporary file generated by PV4E Export operation.

## Feature Overview

The CSV import file supports the following:

- Import of Locations
- Import of Connecting HW Inventory

- Import of Rack Equipment Inventory
- Import of Network Equipment Inventory
- Import of Links Information

Export supports the following (and relative imports):

- Export of Locations
- Export of Connecting HW Inventory
- Export of PVMax equipment Inventory
- Export of Network equipment Inventory
- Export of Rack Equipment Inventory
- Export of Terminal Equipment Inventory
- Export of Links Information

## Scope

Both servers (the server from which the data is exported and the server to which the data is imported) must have the same configuration as well as the same:

- PV4E Version
- Service Packs, updates and hot fixes
- Language Pack
- Driver Pack
- CAD Version

If configuration of both servers' does not correspond, the user is notified and the import operation cancelled.

## Permissions

An Import permission category has been added to a permission group.

The import operation is only available to users with Edit/Delete permission to import.

The export operation is available to all users.

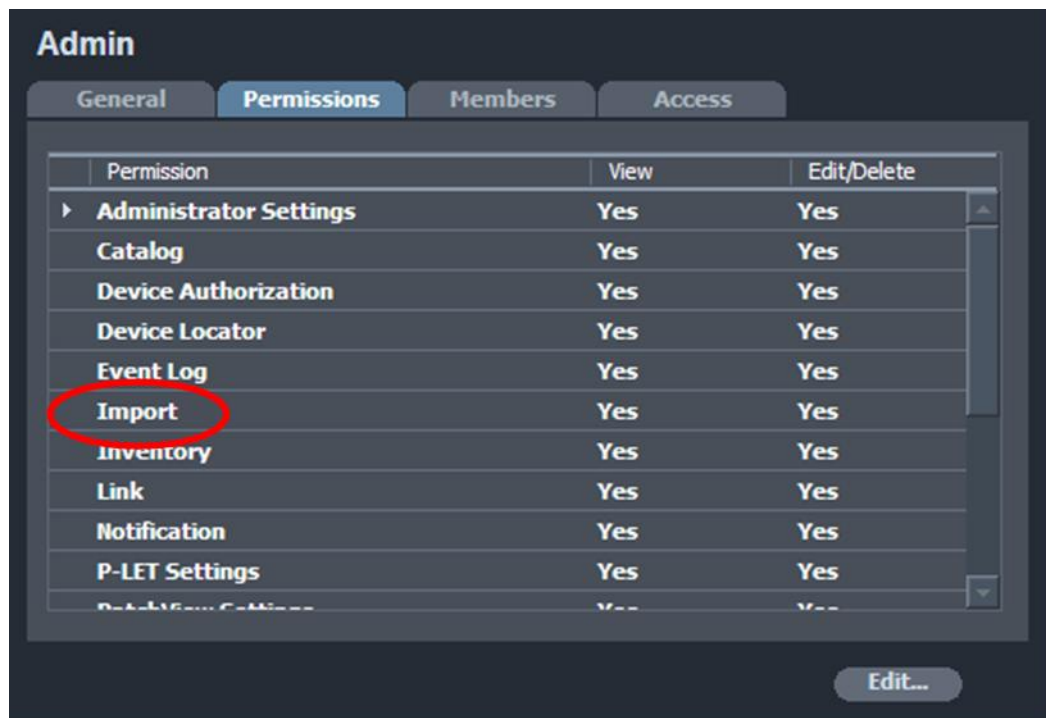


Figure 173 - Permissions Window

## Export to an Export File

### Work Flow and User Interface

A new *Export to a File* option has been added to the Tools menu.



Figure 174 - Export to a File – Tools Menu

When selecting *Export* the following *Export* screen appears:



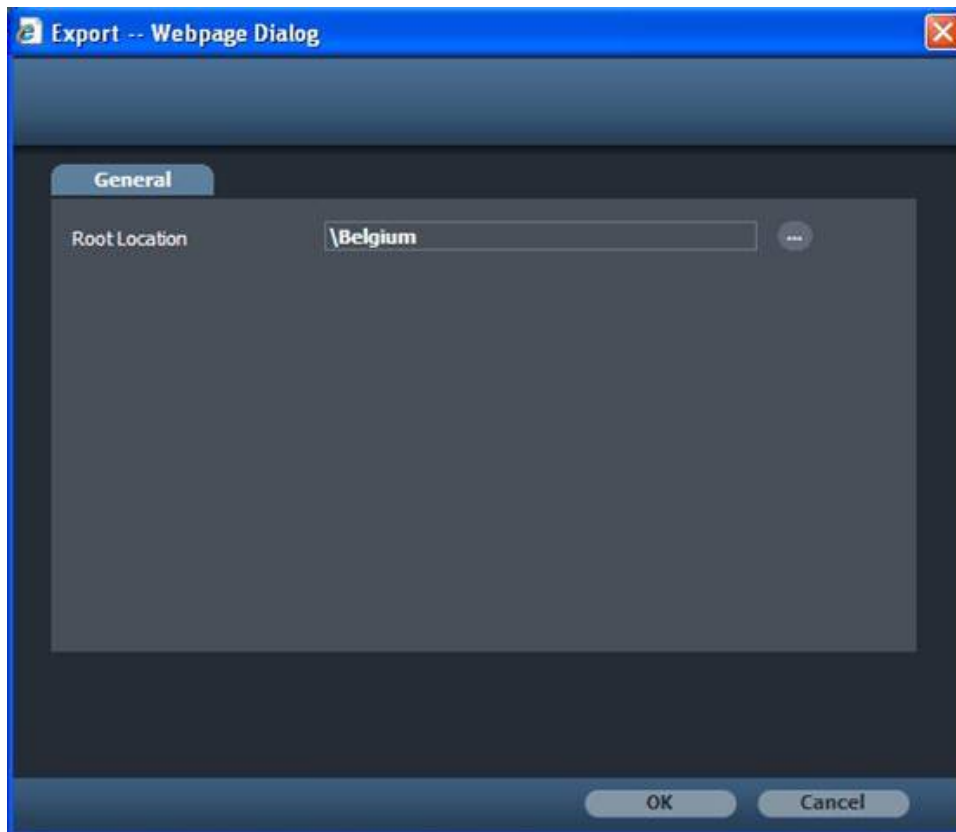



Figure 175 - Export Window

When selecting browse  from the *Root Location* field, a Location dialog box opens, allowing you to choose the root location to export.

After you select a location, click **OK**, the export operation starts immediately as a batch operation that runs in the background. An event will be fired indicating that the export process has been started.

An indication is shown on the screen when the export operation is in progress.



Once the export process is complete, two events will be fired. One contains statistic information of the export process, and the other indicating that the export process is complete and the file is ready for use.

You have the option to stop an export operation that has already started. Once the export process begins, the Export to a File option in the Tools menu changes to a *Stop Export*". This option appears only for the user who initiated the export operation.

If you select *Stop Export* from the pull-down menu, a pop-up warning box appears prompting you to confirm cancellation and *Stop Export* operation.



Figure 176 - Stop Export – Tools Menu

## Process Behavior

- The export process generates a file for internal PV4E use, with an .exp extension
- The file includes the inventory and link information for the items related to the selected sub-tree, the locations, and all user defined catalog items in the Catalog
- If the link between a device is under an exported sub-tree and a device is outside the sub-tree, the link information is not exported
- If during data export, a user logs off, their session expires or the browser window shuts down, the process continues

## Import from an Export File

### Work Flow and User Interface

Please note that prior to initiating an import operation, PatchView and PVMax must be in offline mode (from the topology screen). PV4E will verify this.

A new *Import from a File* option has been added to the Tools menu.

This option appears only for users with Edit/Delete permission to import.

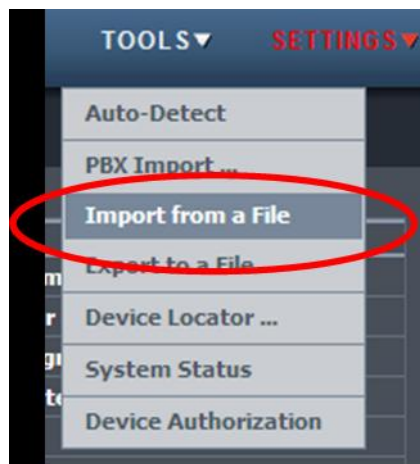


Figure 177 - Import from a File - Tools Menu

When selecting **Import**, the following *Import* screen opens:

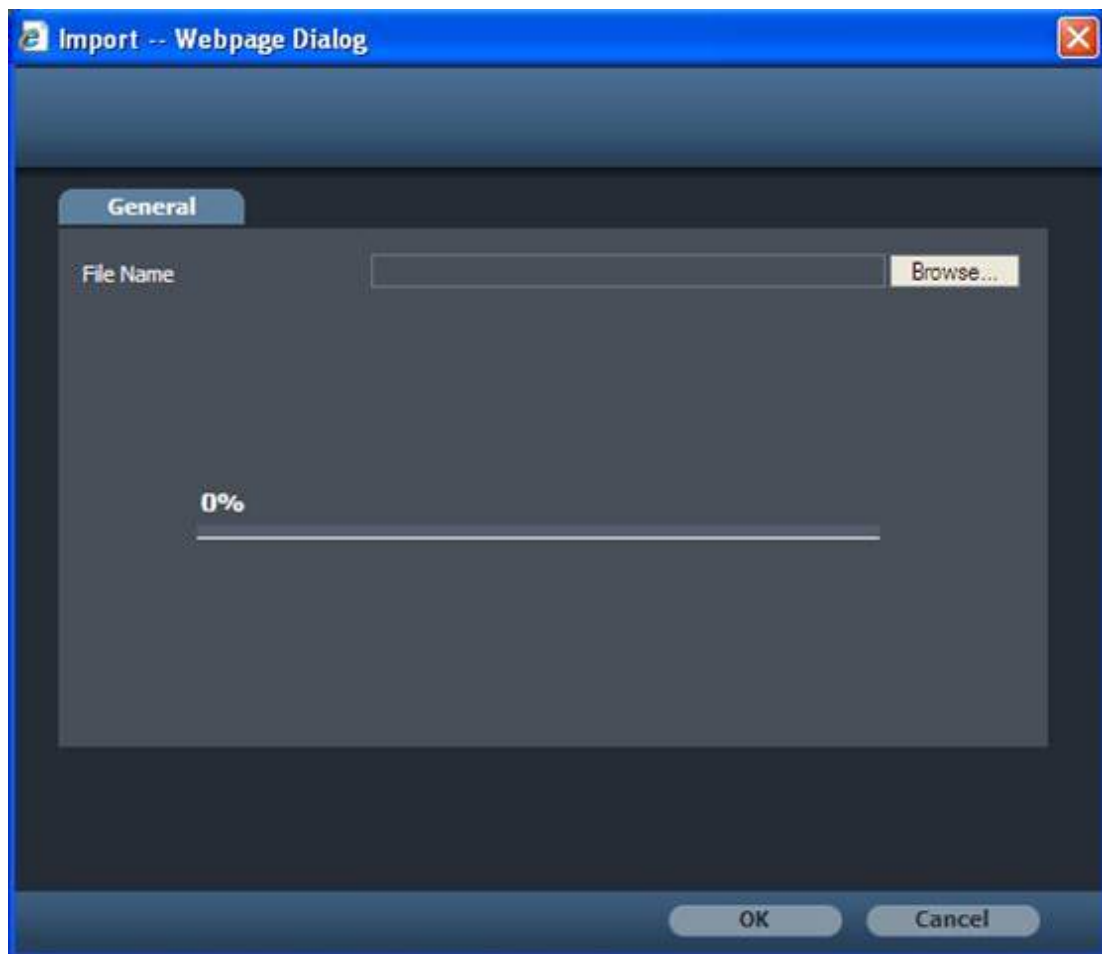
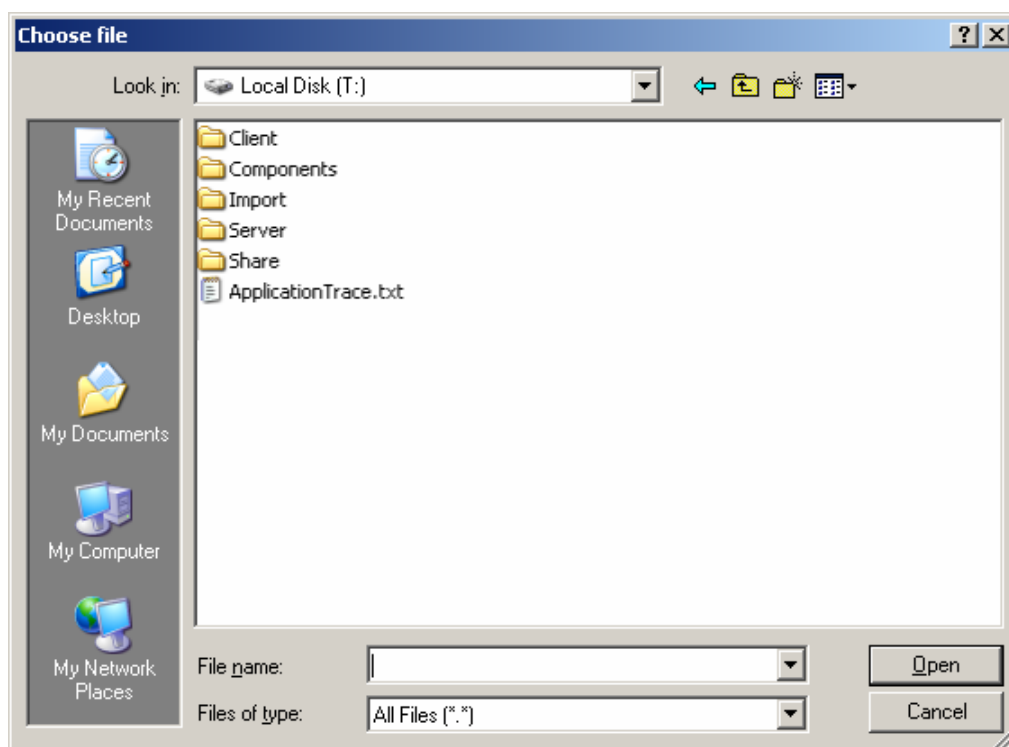


Figure 178 - Import Window

Click **Browse**, a file dialog box opens that allows you to select the file to import.



*Figure 179 - Choose File Window*

A validity check is performed after a file has been selected.

A window is displayed showing a progress bar and a **Stop** button to cancel the operation.

The validity test can result in either **success**, **warning** or **error**.

If the validity test is successful, the import operation starts immediately as a batch operation running in the background. A pop-up message appears and an event fired indicating that the import process has been started.

Once the import process is finished, two events are fired. The first contains statistic information of the import process, and the second indicates that the import process is complete. A pop-up message appears for the user that initiated the operation.

If the validity test returns a warning, a pop-up warning box appears prompting you to confirm whether you wish to continue or cancel, together with a link to the conflict report.

If you select **OK**, the process continues.

If you select **Cancel**, a conflict report is displayed.

If the validity test returned errors, an error message displaying a notice of file errors appears, the operation is canceled, and a conflict report shown.

The user has an option to stop an import operation that has already started. Once the import process begins, the *Import from a File* option, in the *Tools* menu, changes to a *Stop Import*. This option appears only for the user who initiated the import operation.

If the test you are performing returns a warning, a pop-up warning box appears prompting you to confirm whether you wish to continue or cancel the import operation.

**Note:**

*If a user imports a file, after the validation has ended, another user (or the same one) modifies an item in the PV4E system that conflicts with the data being imported, the problematic item is ignored and the conflict is written to the log.*

## Process Behavior

- The import process is inserted to the EXP file data in the PV4E production database
- If the same inventory item (same name and catalog type) is found both in the EXP file and in the database at the same location, the Import process ignores the item
- If the same catalog item (same name, functional type and class) is found both in the EXP file and in the database, the Import process will compare the two items' properties. If the items are the same, the Import process will skip to the next item in the file. If the items are different, an error message appears and the entire import process is aborted

- A duplicate catalog item with identical properties both in the file and the database, is not considered a conflict

## EXP File Validity Tests

### Version Check

The PV4E version that exported the data must be identical to the PV4E version that imports the data.

### Manual Editing of .exp File

The .exp file must not be edited manually since it is generated by PV4E.

### Catalog Item Line Validity Test

Catalog items must either be new or identical to the correlating item (same name, functional type and class) in the PV4E production database.

### General

A conflict is generated in the following cases:

- If an inventory item (name and catalog functional type) already exists
- A Slot No. contains an occupied slot no. in its container

### Error Handling

All conflicts encountered during the validity check are saved to build a conflict report

### Conflict Report

A conflict report provides you with information regarding conflicts that were found in the CSV file.

The report states for each conflict the conflict type: warning or error, the line number, field name and field data that caused the conflict, and a short conflict description.

## Import from a CSV File

### Work Flow and User Interface

See *Work Flow and User Interface*.

## CSV File Structure

### General

The first line of a CSV file is the header, composed of: "PV4E CSV File".

The first field of an inventory item record holds the following item types:

1. Location
2. Connecting HW
3. Rack Equipment
4. Network Equipment
5. Link information

### Location Record Structure

The record structure is as follows:

1. Item Type (Location)
2. Location Type (as defined in PV4E e.g. Country, building, floor etc.)
3. Location Name (up to 50 characters)
4. Security level: High/Normal/Low (default Normal)
5. Parent Location – full path of the parent location

***Example:***

```
Location,Country,U.K.,Normal,
Location,City,London,,\U.K.  is equivalent to:
    Location,City,London,Normal,\U.K.
Location,Building,A1,Normal,\U.K.\London
Location,Floor,3rd Floor,High,\U.K.\London\A1
Location,Room,Main Conf. Room,High,\U.K.\London\A1\3rd Floor
```

## Connecting HW Record Structure

The record structure is as follows:

1. Item Type (Connecting HW)
2. Functional Type (Panel/Outlet)
3. Catalog Name
4. Item Name (up to 50 characters)
5. Location Full Path (without slot no.)
6. Location Type (Location, Rack)
7. Slot No. - relevant only for items inside a Rack
8. Link Terminator: Yes/No (relevant only for Panels, and is ignored for Outlets)

All other information is derived from the catalog.

### **Example:**

```
Connecting HW,Panel, SMART F/O 48,2F-PP1-P1-48,  
\U.K.\London\A1\3rd floor\Main conf. room\Rack01,Rack, 3.5,No
```

```
Connecting HW,Outlet,"Double 5e, 1-Port, STP",Outlet 467,  
\U.K.\London\A1\3rd floor\Main conf. room,Location, 0,No
```

## Rack Equipment Record Structure

The record structure is as follows:

1. Item Type (Rack Equipment)
2. Functional Type (Cable organizer, rack, shelf, Spacer)
3. Catalog Name
4. Item Name (up to 50 characters)
5. Location Full Path (without slot no.)
6. Parent Location Type (Location, Rack)
7. Slot No. - relevant only for items inside a Rack
8. "U" Order (Bottom, Top) - relevant only for Racks

All other information is derived from the catalog.

### **Example:**

```
Rack Equipment,Cable Organizer,Cable organizer 1U,CO  
350,\U.K.\London\A1\  
6th Floor\CR\8E, Location, 0, None  
Rack Equipment,Shelf,Shelf 0.5U,Shelf01,\U.K.\London\A1\6th  
Floor\CR\8E\Rack01,  
Rack, 16.5, None
```

## Network Equipment Record Structure

The record structure is as follows:

1. Item Type (Network Equipment)

2. Functional Type (Switch, PBX)
3. Catalog Name
4. Item Name (up to 50 characters)
5. Location Full Path (without slot no.)
6. Parent Location Type (Location, Rack)
7. Slot No. - relevant only for items inside a Rack
8. IP
9. MAC
10. Serial No. (up to 20 characters)
11. Community Name
12. Timeout
13. Retries
14. Monitor: Yes/No

All other information is derived from the catalog.

**Example:**

```
Network Equipment,Switch, WS-C6506 Chassis,Sw01,\U.K.\London\A1\
6th Floor\CR\Rack01, Rack, 15,10.100.40.10,00-05-2B-23-40-
FF,2345678, public,250,1,Yes
```



## Network Equipment Module Record Structure

The record structure is as follows:

1. Item Type (Network Equipment Module)
2. Container Functional Type (Switch, PBX)
3. Container Name
4. Container Location Full Path (without slot no.)
5. Container Parent Location Type (Location, Rack)
6. Container Slot No. - relevant only for containers inside a Rack
7. Catalog Name
8. Item Name (up to 50 characters)
9. Serial No. (up to 20 characters)

All other information is derived from the catalog.

**Example:**

```
Network Equipment Module, Sw01, Switch,\U.K.\London\A1\6th
Floor\CR\Rack01,
Rack, 15, \U.K.\London\A1\6th Floor\CR\8E,,WS-F5541
Module,Sw01Module01, 2345678,1,1
```



## Link Information Record Structure

Each element of a link is represented by four fields:

1. Item Type (Link)
2. First Container Name



3. First Container Type (Connecting HW, Network Equipment, Network Equipment Module)
4. First Container Location Full Path (without slot no.)
5. First Container Parent Location Type (Location, Rack)
6. First Port Type: Front/Back
7. First Port Number
8. Second Container Name
9. Second Container Type (Connecting HW, Network Equipment, Network Equipment Module)
10. Second Container Location Full Path (without slot no.)
11. Second Container Parent Location Type (Location, Rack)
12. Second Port Type: Front/Back
13. Second Port Number

A link information record is made up of a record type field and a pair of link elements.

A link between Switch 3750, port 05 to a patch panel 2F-PP2-P1-48, port 03 will appear as:

Link, Switch 3750, Network Equipment, Switch,  
\U.K.\London\A1\3rd Floor\Communication



Room 1\Rack01,Rack, Front,5,2F-PP2-P1-48,Connecting  
HW,\U.K.\London\A1\3rd Floor\

Communication Room 1\Rack20,Rack, Back,3

## CSV File Validity Tests

### General

The verification process may take several minutes. During this time you will not be able to perform any tasks.

An error will be generated for a conflict that cannot be ignored and will lead to the cancellation of the process.

A warning will be generated for a conflict that can be ignored and does not affect the rest of the process.

A conflict is generated in the following cases:

- CSV line has the wrong number of fields according to its type (If a field is omitted it should be represented by consequent commas)
- Item Type has an invalid value. Valid values are: Location/Connecting HW/Rack Equipment/Network Equipment/Link information
- Inventory item (name and catalog functional type) is not unique in its location
- Catalog Name is not defined in the PV4E catalog
- Location Name is not defined previously in the CSV file or does not exist in the PV4E database
- Item Name cannot contain more than 50 characters

- Parent Location must contain a location according to PV4E Location Tree policies  
**Example:** It is illegal to define a room as a parent location to a floor, or a panel inside a shelf.
- Slot No. contains an invalid or occupied slot no. in its container
- Parent-child functional type must meet PV4E policy according to the following table

### Valid Parent-Child Items

The following table lists all the items and the valid parents of the items.

Child Item	Parent Item
CableOrganizer	Rack
Shelf	Rack
Spacer	Rack
IPPhone	Rack
KVM	Rack
Station	Rack
Switch	Rack
PBX	Rack
Router	Rack
Hub	Rack
Expander	Rack
Master	Rack
MasterExpander	Rack
Scanner	Rack
Controller	Rack
Panel	Rack
IPPhone	Shelf
KVM	Shelf
Station	Shelf
Printer	Shelf
Telephone	Shelf

Child Item	Parent Item
Switch	Shelf
PBX	Shelf
Router	Shelf
Hub	Shelf
ControlPad	Shelf
Switch Module	Switch
PBX Module	PBX
Router Module	Router
Hub Module	Hub
Master Module	Master
All Items	All Locations except root location

### Location Record Validity Test

Location Type must contain a valid location type that exists in the PV4E production database. (Country, building, floor etc.)

Security level field must contain one of the values: High/Normal/Low

### Connecting HW Record Validity Test

Functional Type field must contain one of the values: Panel/Outlet

Link Terminator field must contain one of the values: Yes/No

### Rack Equipment record Validity Test

Functional Type field must contain one of the values: Cable Organizer/Rack/Shelf/Spacer

U Order must contain one of the values: Top/Bottom

### Network Equipment Record Validity Test

Functional Type field must contain one of the values: Switch/PBX/Hub/Router

IP Field must contain a valid IP address

MAC Field must contain a valid MAC address

Serial No. Field cannot contain more than 20 characters

Timeout field must contain a whole positive number between 10 and 300,000

Retries field must contain a whole positive number between 1 and 5

Monitor field must contain one of the values: Yes/No

## Network Equipment Module Record Validity Test

Container Functional Type field must contain one of the values:  
Switch/PBX/Hub/Router.

Serial No. Field cannot contain more than 20 characters.

## Link Information Record Validity Test

Every link element must be defined previously in the CSV file, even though it exists in the PV4E database.

Every port element can be connected to one device only, and the port must be available.

Port Type must contain one of the values: Front/Back.

Port Number must contain a valid port number in its container, 1 or greater.

## Error Handling

All conflicts encountered during the validity check are saved to build a conflict report.

If you choose to continue with the import process, despite reported warnings, every line in the CSV file that caused a conflict will be ignored.

## Conflict Report

A conflict report provides you with information regarding conflicts found in the CSV file.

The report states for each conflict the conflict type: warning or error, the line number, field name and field data that caused the conflict, and a short conflict description.

## Log File

The Import and Export processes logs every item transferred to a log file.

The Export process produces a log file for every location item, catalog item, inventory item and link information that was exported.

The Import process produces a log file for every location item, catalog item, inventory item and link information that were imported, and every location item, catalog item, inventory item and link information that was ignored due to a conflict.

The format of the import/export log file make it simple to verify that all exported items were imported.

## Possible Conflicts for Imported File types

During the import process, a verification of the lines in a csv or an .exp file takes place. This process determines which lines are valid and which are invalid.

Error: A conflict that cannot be ignored results in the cancellation of the process.

Warning: A conflict that can be ignored and does not affect the rest of the process. The line is skipped and the import continues in the next line.

The following table lists all the possible conflicts and their error type (error or a warning).

Conflict Description	Type
Wrong number of fields	Warning
Invalid Item Type	Warning
Invalid Functional Type	Warning
Class Name does not exist	Warning
Catalog Name does not exist	Warning
Related item does not exist Example: Vlan of Network Equipment is not in the destination database	Warning
Catalog Name exists with different properties	Error
Location does not exist	Warning
Location Type does not exist	Warning
Location Type does not meet PV4E Location Tree policies Example: Trying to place a country inside a city	Warning
Parent Item does not exist	Warning
Slot no. is not available	Warning
IP Address already exist	Warning
Link Item does not exist	Warning
Port is occupied or reserved	Warning
Port does not exist	Warning
Invalid value for field Example: Value "aaa" for Rack U Order field (valid values are: Top/Bottom)	Warning
Duplicate item in location	Warning
Value exceeds maximum length Example: Item name length is more than 50 characters	Warning
The file version does not match the destination database version	Error
The file could not be read. The file may be corrupt or created using a different PV4E version	Error




Conflict Description	Type
The file has been changed since exported by PV4E and cannot be imported	Error
Error creating file. Either the folder does not exist or there is no write permission	Error
Error reading from the database	Error
Error connecting to PV4E components	Error
The file is empty	Error
Nothing to export	Warning
Item exists with different catalog	Warning
Invalid link between copper to fiber devices	Warning
Invalid link	Warning
Invalid parent functional type	Warning

**Event Detail -- Web Page Dialog**

[Previous log](#)  
[Next log](#)

C:3	item number 2 imported successfully. Item name: \India
C:3	item number 4 imported successfully. Item name: \India\Bombay
C:3	item number 5 imported successfully. Item name: \India\Agra
C:3	item number 6 imported successfully. Item name: \India\Agra\Taj-Mahal
C:3	item number 7 imported successfully. Item name: \India\Agra\Taj-Mahal\Floor 1
C:3	item number 8 imported successfully. Item name: \India\Agra\Taj-Mahal\Floor 2
C:3	item number 9 imported successfully. Item name: \India\Agra\Taj-Mahal\Floor 2\Comm. Room
C:2	Invalid item. Item number: 10 Item Name: \India\Bombay\Nepal Conflict description: Location Type does not meet PV4E Location Tree policies
C:3	item number 13 imported successfully. Item name: \India\Agra\Taj-Mahal\Floor 2\Comm. Room\CSV_Rack03
C:2	Invalid item. Item number: 14 Item Name: \Nepal\CSV_Rack04 Conflict description: Location does not exist Missing Location: \Nepal
C:3	item number 15 imported successfully. Item name: \India\Agra\Taj-Mahal\Floor 2\Comm. Room\CSV_Rack03\CSV_Panel01
C:3	item number 16 imported successfully.





Event Detail screen legend:

-  No errors were found.
-  Warning encountered, conflict can be skipped.
-  Critical error. Cancels entire operation.

## New Events

## Export Events

Along with the export started event, a pop-up message appears notifying you that the operation has started. With the export completed event, a pop-up message appears notifying you that the operation has completed.

Events			
Info	Date/Time	Event Code	Event Category
	09/13/2009 15:38	Export Process Completed	DB
	09/13/2009 15:38	Export Statistic Information	DB
	09/13/2009 15:37	Export Process Started	DB
	09/13/2009 11:43	User Logged In	License

## Export Process Started Event



Figure 180 - Export Event Detail Window



## Export Statistic Information Event

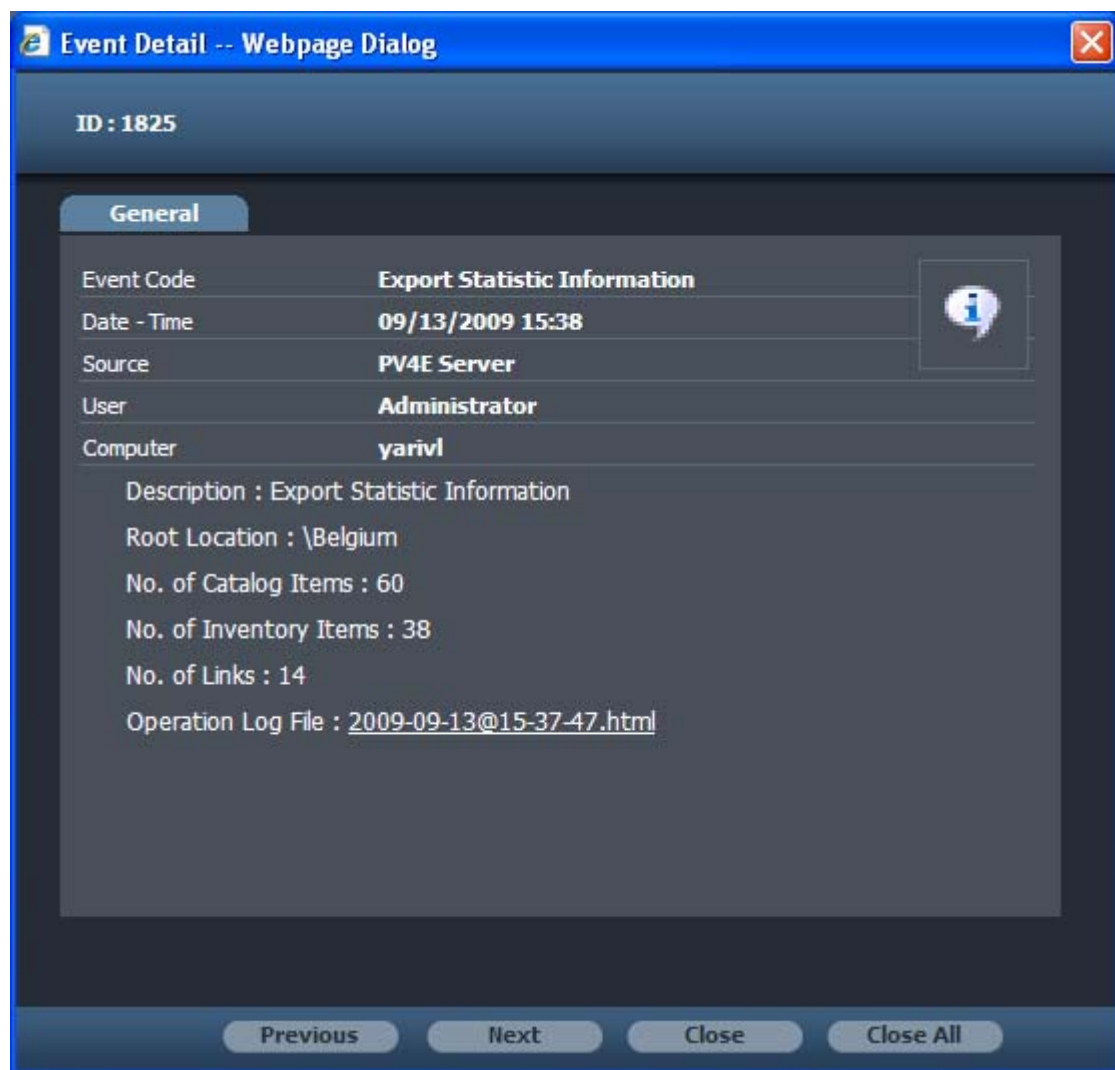


Figure 181 - Export Statistic Event Detail Window

If the total number of items in a statistic information line is zero, the line should not appear at all.

## Export Process Completed Event

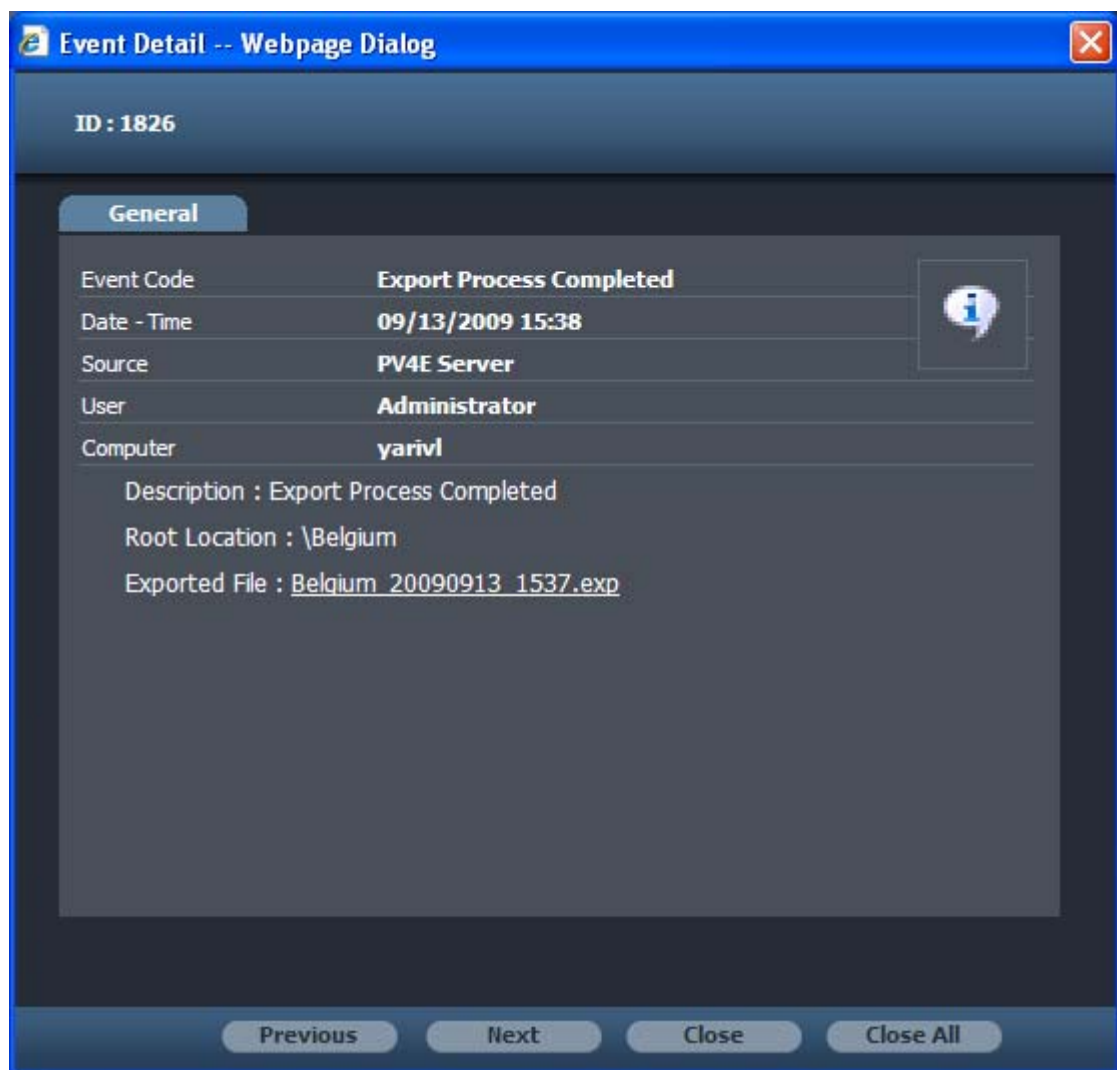


Figure 182 - Export Completed Event Detail Window

The exported file is saved on the server. To download to the client, click the hyperlink.

## Export Process Completed with Conflicts Event

If errors occurred during an export operation, an Export Process event completed with errors is fired.

## Import Events

Together with the import started event, a pop-up message appears notifying you that the operation has started. The process is the same for completed events.

If the import process completes with a warning, the yellow warning icon appears in the event window. A red error icon appears for errors.

## Cable Test Results

### General

Cable test results provide connectivity information regarding links between ports to the customer. The information also contains data for electrical cable tests for each port.

The Cable Test Results are stored on the PV4E server (or in a place accessible by the PV4E file system). The PV4E GUI contains options to view these results using a PDF/FLW viewer.

**Note:**

*The Fluke viewer for flw files is not part of the PV4E installation and must be installed on the client machine.*

### Overview

Cabling test results exist for the following Link/Channel components:

- a. Panel port to Panel port connected Back to Back – link
- b. Outlet port to Panel port connected Back to Back – link
- c. Switch port to Panel port connected to panel back – link
- d. Switch port to Outlet – channel

A Fluke file viewer (FLW viewer or PDF viewer) must be installed on every client machine using this feature. The **run** option of the ActiveX viewer must be enabled.

The PV4E Server has read access to the file system where the cable test results are stored.

PV4E will only read data from the directories tree where the cable test results are stored.

You cannot set cable test results for items in “No Location”. These items, by definition, must be moved to their correct location. PV4E does not manage files in storage.

### Example of Use

A storage place is created for the cable test result files, PV4E is then set to this storage path. When you wish to view a cable test result of a specific port, PV4E will automatically search for it in the storage place. Once it has been located, you are then able view the results via an ActiveX viewer.

If the specific port does not have any cable test results, PV4E will search for alternatives. If an alternative is found, a list is displayed. You can then select which result to display.

### Location Tree Association

Changes in the PV4E location tree will not affect the storage directory tree. However, changing the name of an item or moving it will cause a mismatch between the trees' item names. As a result the cable test results will lose their association.

## Cable Test Results Storage

In a file system accessible by PV4E, create a directories tree with the same structure as the PV4E Location Tree. The lowest level of the directories tree will be the device>panel>outlet port.

Beneath the above directory, create two more directories to contain the cable test result files. One named 'Link' and the other 'Channel'.

These two directories will hold the file link cable test results and the channel cable test results respectively.

**Note:**

*There is no need to create the 'Channel' directory for panel's ports.*

The follow screen displays the directories tree.

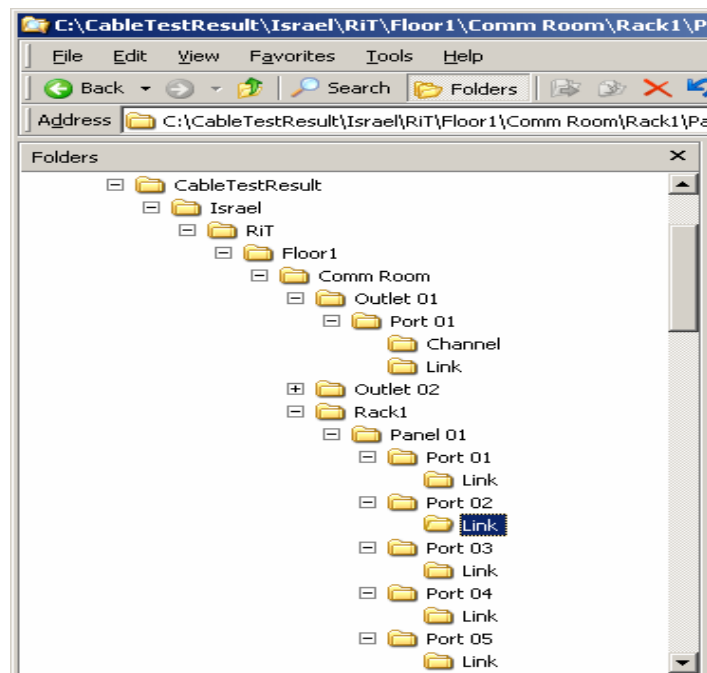


Figure 183 - Cable Test Results – Directories Tree

**Note:**

*Functional types in the location tree are ignored in the directories tree*

## Panels and Outlets

Panels and outlets have sub directories named after their front ports' inventory names. See the following illustration:

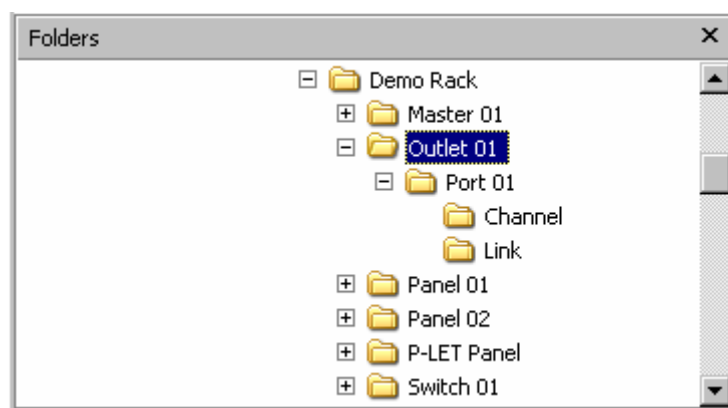


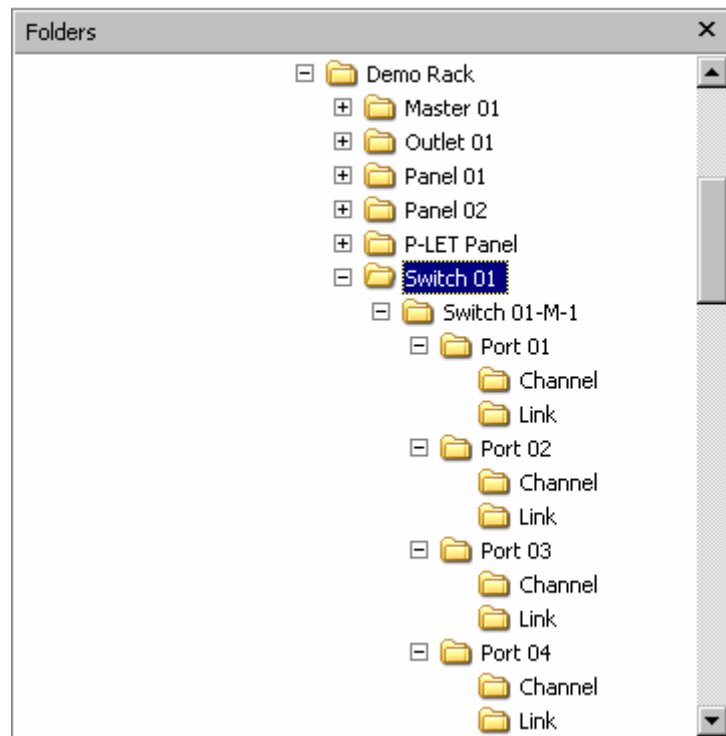
Figure 184 - Cable Test Results – Outlet Folders

**Note:**

*It is not necessary to create the 'Channel' directory for a panel's ports.*

## Switches

Switches have sub directories named after their switch modules. The switch modules directories have sub directories named after their front ports. See the following illustration:



*Figure 185 - Cable Test Results – Switch Folders*

## Build Tree Utility

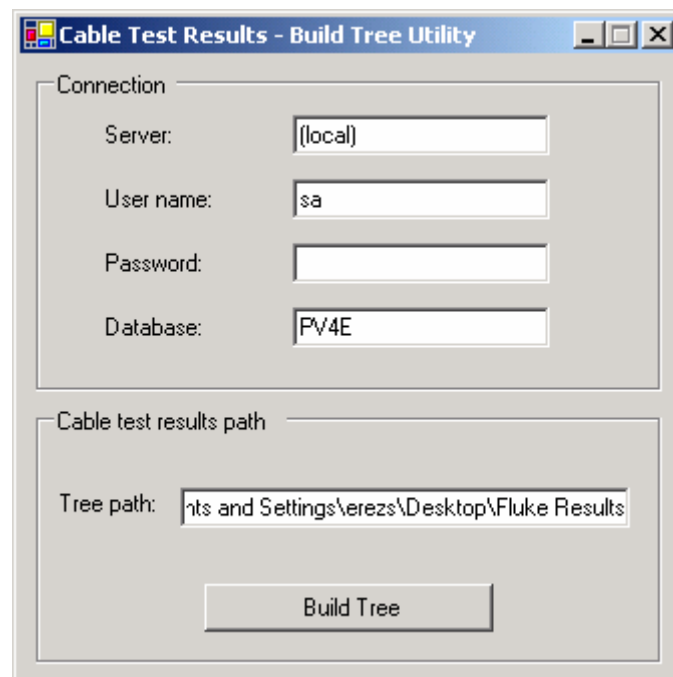
This utility automatically builds the folders tree in the PV4E location tree to accommodate the Cable Test result files.

The location of the Build Tree utility can be found at [PVE4 Installation directory]\Server\Tools.

The typical location is: C:\Program Files\RiT Technologies\PatchView for the Enterprise\Server\Tools

To build a new Tree Utility, perform the following steps:

1. Specify the connection settings to the server SQL.
2. Specify a name of an existing folder in which the subfolders would be created.
3. Press the Build Tree button and wait for a message saying that the folders were created.



**Cable Test Results - Build Tree Utility**

Connection

Server: (local)

User name: sa

Password:

Database: PV4E

Cable test results path

Tree path: nts and Settings\erezs\Desktop\Fluke Results

Build Tree

Figure 186 - Build Tree Utility

## Usage

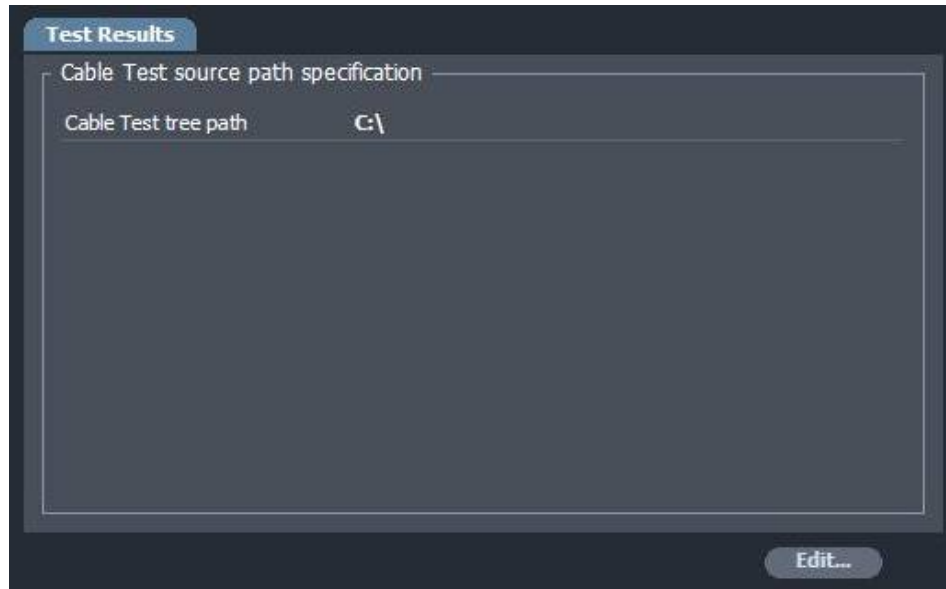
### Set Cable Test Results Storage Root Path

A new option *Cable Test Results* has been added to the PV4E GUI in the Settings Tab. See the following screen.



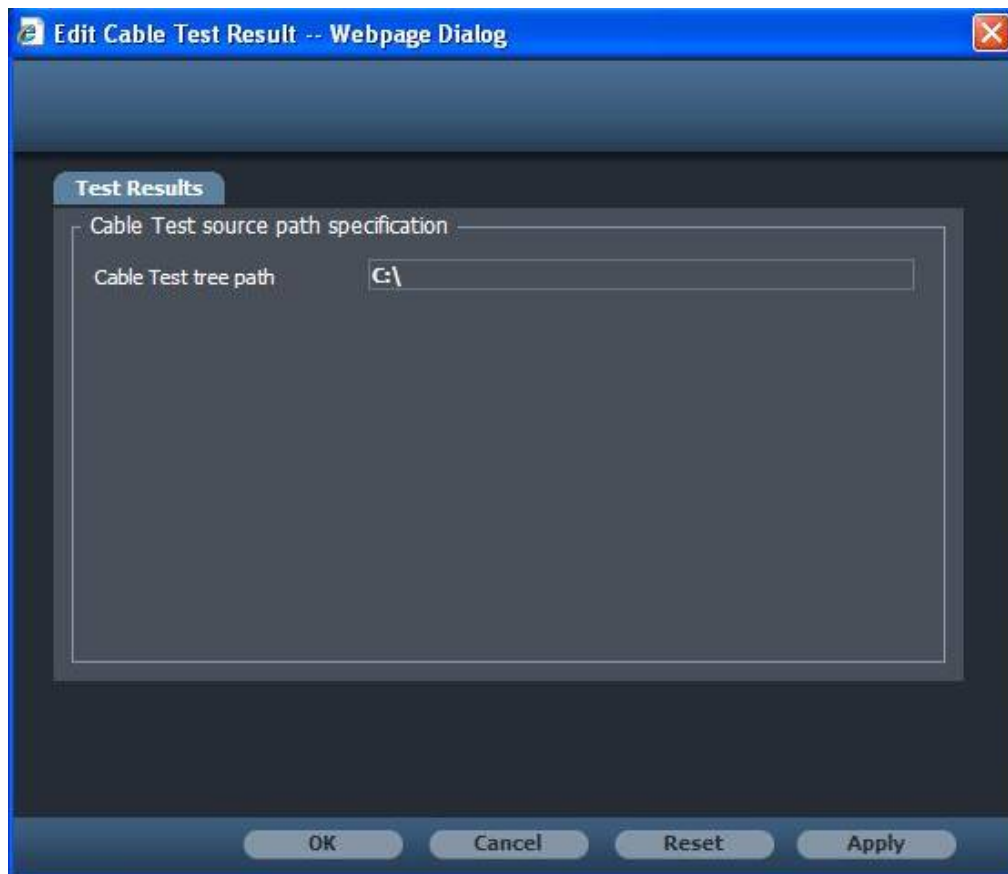
*Figure 187 - Cable Test Results - Settings Tab*

Once the **Cable Test Results** option is selected, the following screen is displayed and allows you to define the path of the root directory of the *Directories Tree*.



*Figure 188 - Cable Test Source Path*

1. To change the path, Click **Edit**. The following screen opens.





*Figure 189 - Edit Cable Test Result (Path)*

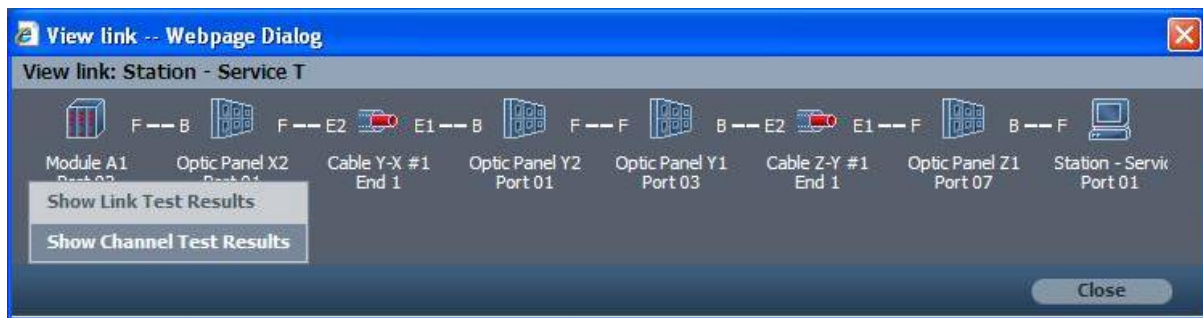
The path is entered in a text edit box manually. (You do not choose the path from a directory tree dialog). The path change takes effect immediately.

2. Click **OK** in the Edit dialog box. PV4E checks if the directory exists and is accessible. If an invalid string is entered or PV4E detects a problem in the GUI – a proper message will appear.

## Viewing a Port Cable Test Results

There are two options for viewing cable test results.

1. The first is from a menu in the View Link. This is a new menu that opens when you right-mouse click on the port.

*Figure 190 - View Link*

**Note:**

*The 'Show Channel Test Result' option does not apply to Panels, but only for switches and outlets.*

2. The second is from: switch>panel>outlet properties view:

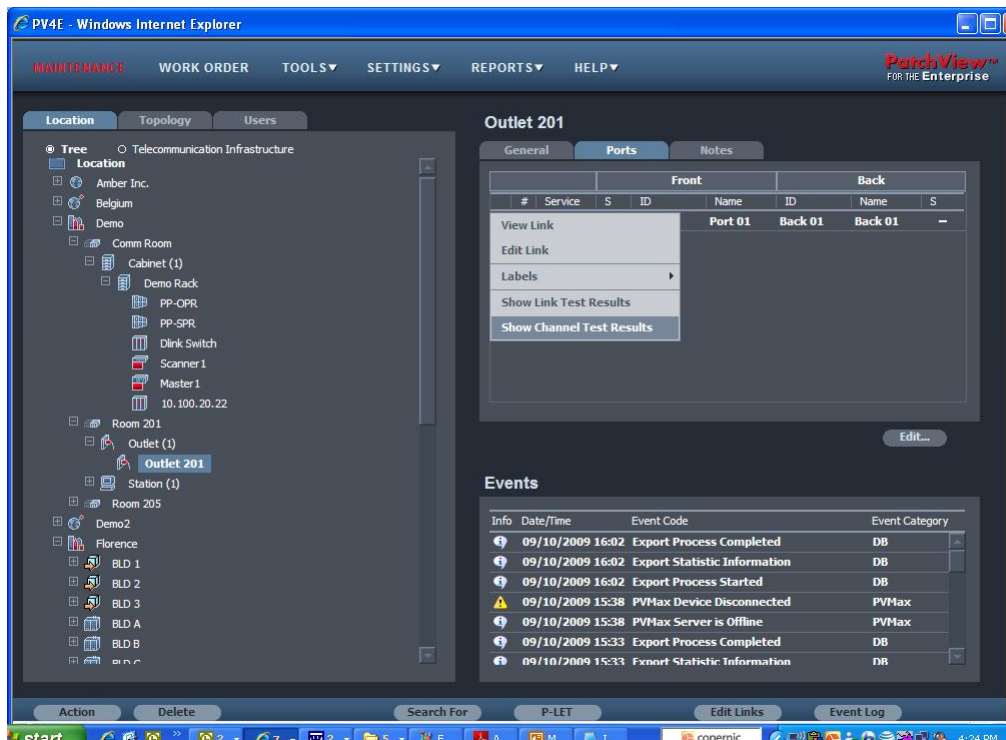


Figure 191 - Ports tab

**Note:**

*The 'Show Channel Test Results' option is only available for switch and outlet ports.*

These are the only two places where this option is available. The option is not enabled from the Connecting HW Search, Show Panel, and Show Rack.

If the cable test result is disabled, the menu will not display the cable test result options. The menu will not be shown at all in the view link.

## Show Port Cable Test Results

In order to display the port's cable test results, PV4E performs the following two tasks:

1. Searches for the directory that contains the files with the cable test results.
2. Handles the results of the search

## Port Link Cable Test Results Search Order

When you chose to view a port's link cable test result, PV4E searches for the result files in a deterministic order.

The following algorithm is used to find the matching link result file/s:

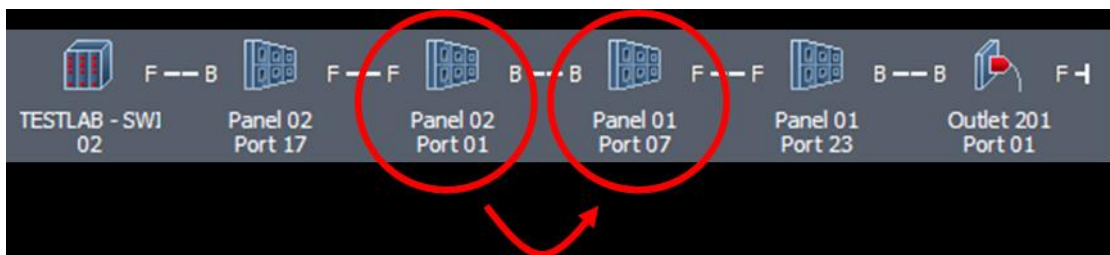
1. Searches for files on the directory of the selected port.
2. If no files are found (step 1), searches for files on the directory of the counter side port of the link.
3. The system returns the first directory that contains files (if any files were found)

For example, if you have the following link:



And you wish to view Panel 02 Port 01 link cable test result. PV4E first searches for the result files in the directory: ...\\Panel 02\\Port 01\\Link (Step 1).

If there are no results, it searches for files in ...\\Panel 01\\Port 07\\Link (Step 2).



If you wish to view TESTLAB SWITCH, Port 02 link cable tests result. PV4E first searches for the result files in the directory: ...\\TESTLAB SWITCH\\TESTLAB SWITCH-M-1\\Port 02\\Link (Step 1).

If there are no results, PV4E will search for files at ...\\Panel 02\\Port 17\\Link (Step 2).



## Port's Channel Cable Test Results Search Order

When you chose to view a port's channel cable test result, PV4E searches for the result files in a deterministic order.

The following algorithm is used to find the matching link result file/s:

1. PV4E searches for files on the directory of the selected port.
2. If no files are found (step 1), the system then searches for files on the directory of the counter side port of the **channel**.
3. The system returns the first directory that contains files (if any files were found).

For example, if the user has the following link: (Same as above)



If you wish to view TESTLAB SWITCH, Port 02 channel cable tests result. PV4E first searches for the result files in the directory: ...\\TESTLAB SWITCH\\TESTLAB SWITCH-M-1\\Port 02\\Channel (Step 1).

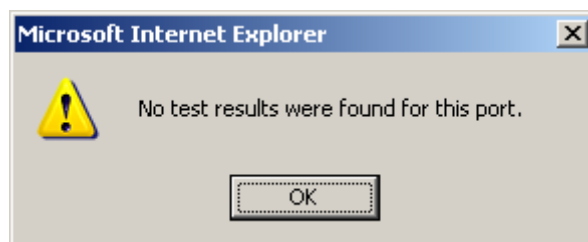
If there are no results, it will search for files at ...\\Outlet 201\\Port 01\\Channel (Step 2).



## Show the Port's Cable Test Results

When the file searching process is complete, PV4E displays one of the following results:

1. No files were found
  - The GUI alerts the user with the following message:



2. Only one file was found in the requested port directory.
  - In this case the file that was found will be opened automatically (you may need to download the file before opening it)
3. More than one file was found in the requested port directory.
  - In this case, the GUI opens a dialog box with the list of files found by PV4E. The list of files has a single selection. Select the file and click **Open** to view. The list will stay open until the **Cancel** button is clicked.
4. Only one file was found in the counter requested port directory.
  - In this case, the counter port's cable test result file will be opened.
5. More than one file was found in the counter requested port directory.
  - In this case, the flow continues as in 3 (above).
6. The storage path is not available.

- In this case, the BL could not access the storage due to one of the following reasons:
  1. The storage path has not been set.
  2. The item's port path does not exist.
  3. The item's port path is inaccessible.

## **Cable Test Result Storage Path**

The storage path is the path to a root directory of the place where the cable test result files are located. The storage path is stored in the database.

## Chapter 6: Creating and Editing Links

### Links Overview

A link is the physical connection between two components. Links can be created in either the Edit Link Module or the Work Order Module.

A Work Order can be created from an Edit Link Worksheet.

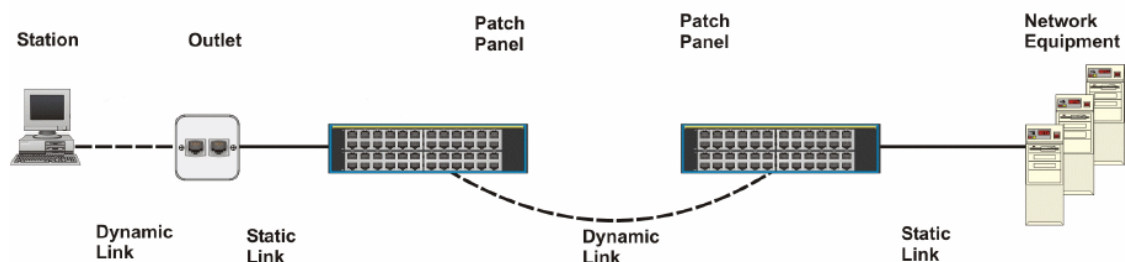
PV4E's network management system monitors and manages existing links and any changes in wiring configuration that connect items together.

Defining and monitoring links can be done either with the system on-line or off-line. The Edit Link Worksheet is designed to work on-line in real-time. You can create links directly in the Edit Link worksheet and send them for immediate implementation to the PatchView scanners. This is especially useful for site configurations.

The Edit Link worksheet graphically represents the physical links between items in the network. It is in this worksheet that you create and define the connectivity of the different items and how they relate to each other. PV4E allows the network manager to define, change and monitor links between components in real-time.

The number of components that can make up a link is unlimited.

The following diagram shows an example of a full link.



*Figure 192 - Example of a Full Link Window*

A common link contains two different types of connections. These are referred to as either Static or Dynamic links.

A Static link is usually a fixed connection, also referred to as an off-line link. These are fixed connections and are rarely changed. Examples are:

- Connections between Network Equipment and Patch Panels
- Connections between Patch Panels and Outlets

A Dynamic link refers to the connection made by a patch cord or cable between equipment and is moved according to certain requirements and specifications. This is also referred to as an On-Line link.vvv

An example of a Dynamic link is the connection between the two Patch Panels.

**Note:**

*A static link can be connected to a Dynamic link. For example, the connection between a Patch Panel and Network Equipment.*

Links must be properly established, or they are considered untraceable. An untraceable link will not function and needs to be corrected. Different types of panels have different link requirements as follows:

<b>Panel</b>	<b>Requirement</b>
24 Ports	Ports in the same row cannot be connected Ports 1-16 can only be connected to Ports 17-24
48 Ports	Ports in the same row cannot be connected Ports 1-16 can only be connected to Ports 17-24, 25-40, or 41-48
With Splitter	Ports in the same row cannot be connected Ports 1-24 can only be connected to Ports 25-48

When working in the Edit Link worksheet, the PatchView System must be on-line. Links that are defined are sent via the scanners to the Patch Panels. Using the Control Pad, the technician is guided through the process of connecting and disconnecting the patch cords to complete the links defined in the system.

The LED above each port blinks to guide the technician through the process until all the changes have been made. Until the actual physical link has been performed the system shows the relevant ports as having a “link pending” status. As soon as the link is made, whether a new link or a changed link, the system registers this and the link status symbol changes to show the ports as linked.

When updating the system, after Catalog Items are defined and the Inventory Items are assigned to their correct locations, their connectivity needs to be defined in the database.

**Tip:**

*A wiring layout showing the physical cable layout of the network should be available in order to define the links accurately in the system. See Planning the Project section in the Setting up Projects Chapter.*

**Note:**

*The P-LET Module discovers the Stations and the Station-Outlet link. If you are using the P-LET Module there is no need to define the Station-Outlet link.*

## Edit Link

### Adding Cables to an open Worksheet

**> To drag and drop a cable into an open Worksheet:**

1. Open an Edit Link Worksheet if one is not already open.
2. Switch to Telecommunication Infrastructure view
3. Select the Cable/s that you would like to add to the Edit Link Worksheet and position the cursor over the icon or one of the icons of the selection. Click on the item or selection.
4. Drag to the Edit Link Worksheet and drop in the required cell. The ports of the cable/s will be added to the Edit Link Worksheet in the selected cells.

Alternatively, to add an Item into an open Worksheet:

1. Open an Edit Link Worksheet if one is not open and click on empty cell.
2. Locate relevant ports, cables, etc.
3. Right click on the item/port and choose "edit link"

## View Links

The *View Link* displays a joint picture of the inventory tree and also the telecommunication tree.

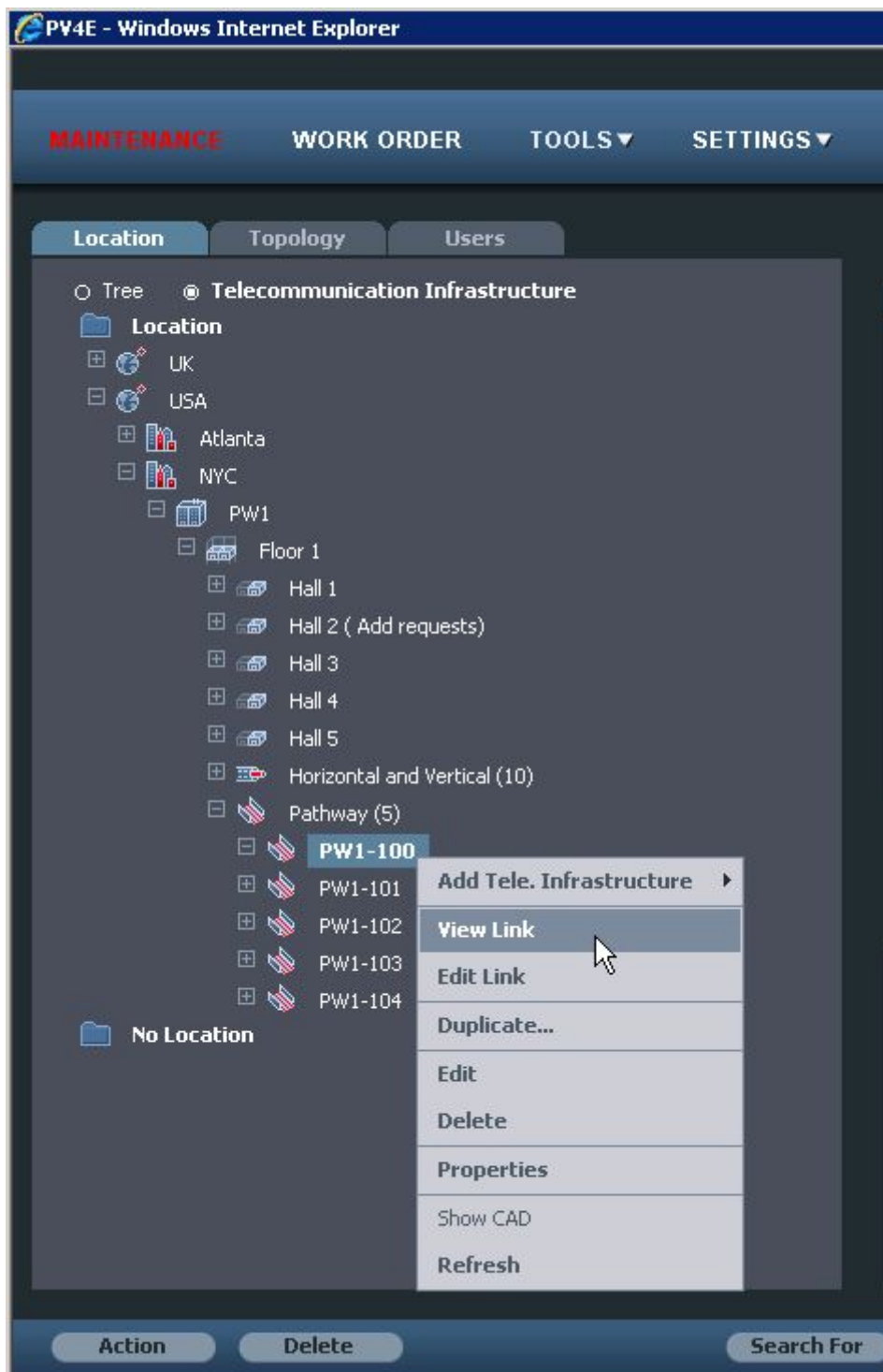
A new function, *View Cable* has been added that displays an illustrated view of the location points of where each cable passes.

## Pathway

**> To view a link for a pathway, do the following:**


1. Stand on the pathway and right-click. Select *View Link* from the context menu.

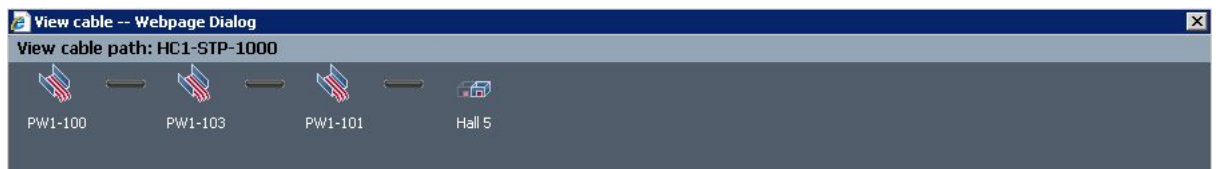




2. The *View Link* opens:

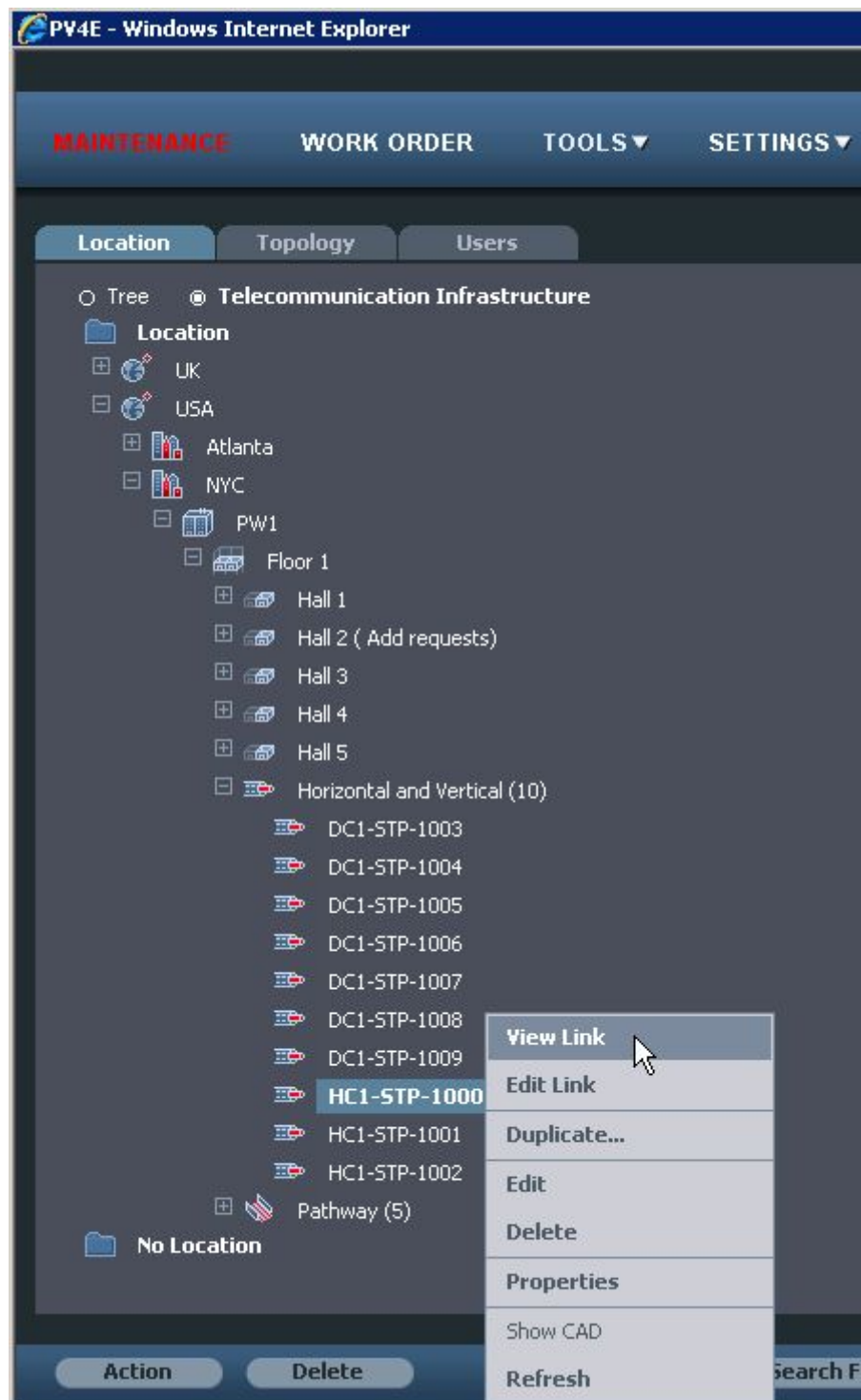


3. The *View Link* displays a joint picture of the inventory tree and also the telecommunication tree. The view link shows the links of all the cables that are placed on this pathway.
4. Click on the cable icon  to view the cable paths. The following *View Cable* window opens:

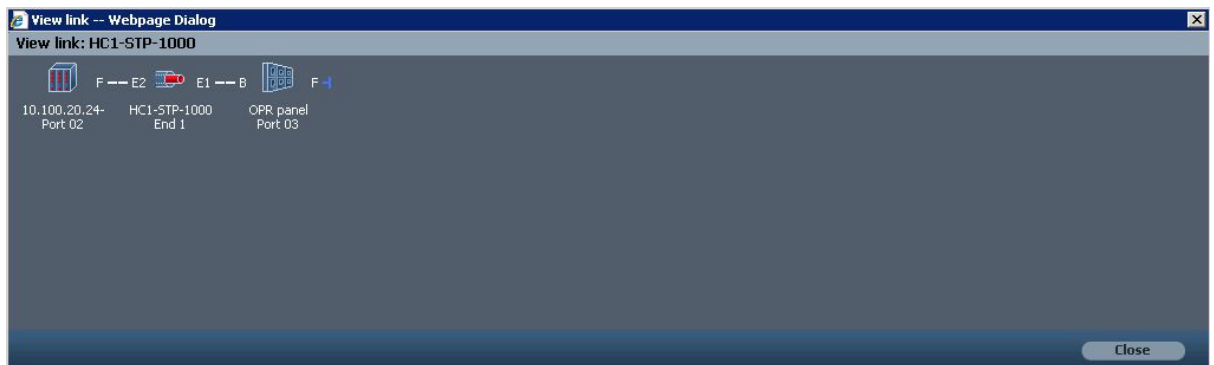



## Cables

1. To view a cable link, stand on the cable and right-click:



The *View Link* screen opens:



2. The *View Link* displays a joint picture of the *inventory* tree and also the *telecommunication tree*.
3. Click on the cable icon  to view the cable paths.



Displays a graphical view of the location points of where each cable passes.

## PatchView Monitored Links

PV4E must be on-line in order to monitor links.

## Working on-line

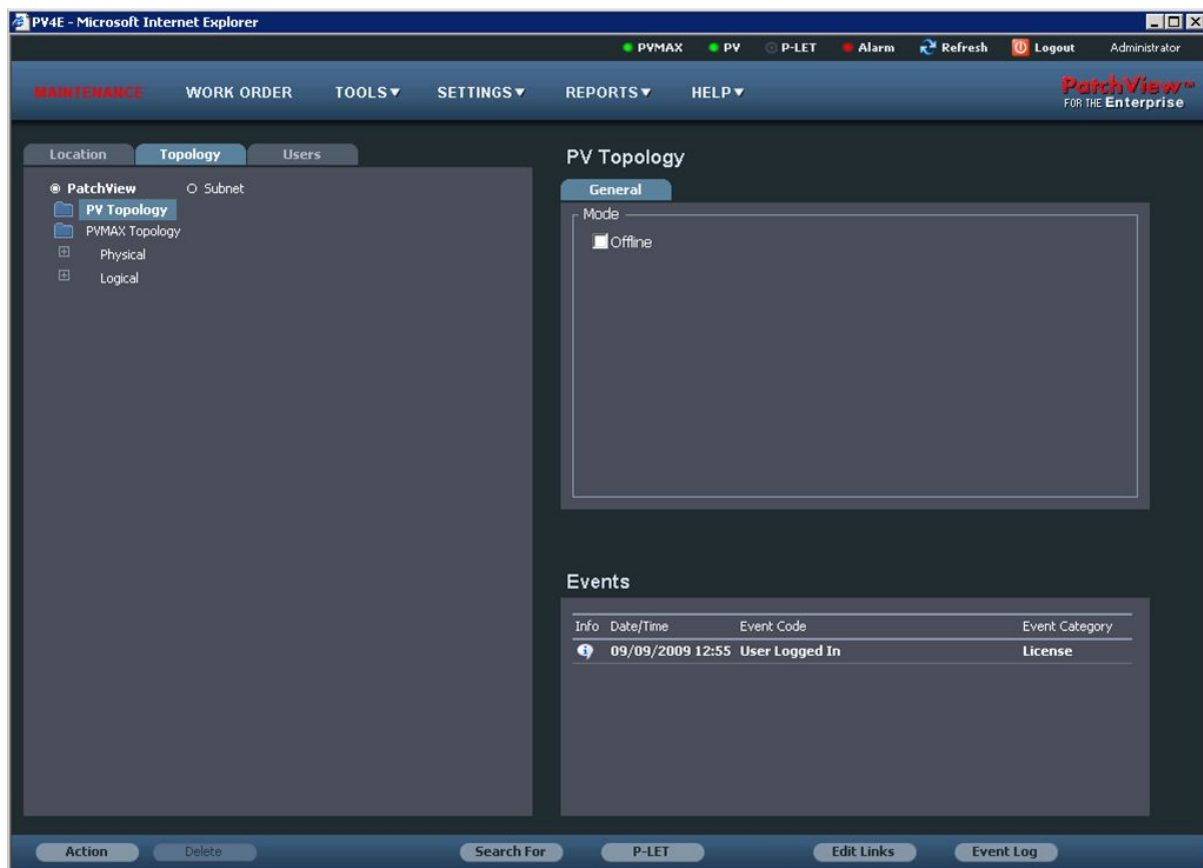
If your system is currently off-line, then it is recommended that you change to on-line for monitoring Dynamic links.

### **Note:**

*To change PV/PVMax to on-line, open Maintenance Module.*

The following diagram shows the steps needed to work on-line.

- > **To work on-line with PV**



*Figure 193 - Working on-line with PVMax*

The PVMax Indicator button is red, indicating that PVMax is off-line.

1. Select the PVMax Topology folder in the Topology Tree.
2. The Information pane opens with the Offline Mode checked
3. Uncheck the off-line box
4. Click on the **OK** button.

The PVMax Indicator button will now be green



> **To work on-line with PVMax**

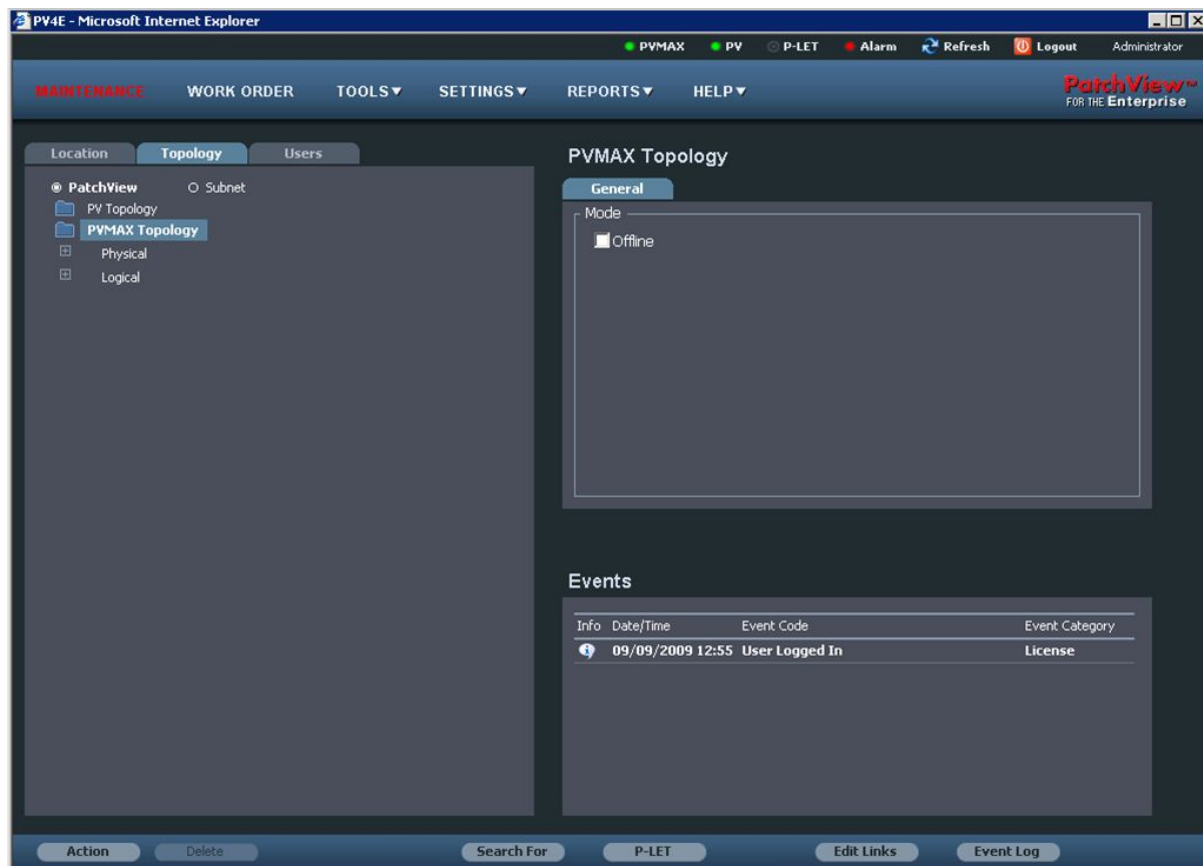


Figure 194 - Working on Line with PVMax

1. The PVMax Indicator button is red, indicating that PVMax is off-line.
2. Select the PVMax Topology folder in the Topology Tree.
3. The Information pane opens with the Offline Mode checked
4. Uncheck the off-line box
5. Click on the **OK** button.

The PVMax Indicator button will now be green



## Secure Links Overview

Links can be defined as Secure Links. Secure links allow you to define one or more vital links in the organization. PV4E closely monitors information on any change or problem that occurs on the secure link or on its end devices (station and switch port). This gives a higher level of control and management for vital links in the network, alerting you of any change in the secure link and minimizing the ability of unauthorized persons to make modifications to the connectivity. You receive an immediate indication on changes to vital links.

A secure link is defined as a link that has a switch port on one side and terminal equipment on the other side, and does not contain elements of an existing broken secure link. One or more links in the organization can be defined as secure links. An alert is issued and logged before performing activities on a secure link, or when changes are physically performed in the field on any of the secure link devices. See *Secure Links*.

## Link Status Indicator

The Link Status Indicator is found in the same window as the Control Pad indicators.

There are three different statuses for the links. These are:

**In Progress**

This means that the process of creating or breaking links has begun

**Pending**

The links have been assigned in either an Edit Link Worksheet or Work Order Task

**Off**

There are no links

Links that have been created but not sent to the scanner can be cancelled. See *Canceling a Dynamic Link*.

> **To view the Link Status Indicators**

1. Click to select the Topology Tab
2. Select the site/group in the Topology Tree where the links are located.
3. The Information pane opens with the Link Status appearing in bold.

## Edit Link Worksheet

Links are created or modified for your assets in the Edit Link dialog. This dialog contains the Edit Link Worksheet and the Function buttons used to access commands for creating, editing and managing links.

The Edit Link Worksheet box can be accessed from either the pull-down menu in Location or Topology or the Edit Link button in the toolbar.

**Note:**

*Work Orders can be created directly from the Edit Link Worksheet. The Add/Edit Work Order Task Worksheet (Similar to the Edit Link Worksheet) is opened from the Work Order Module. This is used to create a Work Order Task. See the Work Order and Managing Links Chapter*

It is possible to display all of a selected Item's ports in the worksheet or select a specific port or selection of ports to appear.

The worksheet consists of columns and rows. Each column is divided into three sections. The item appears in the center section surrounded by its ports. Items are usually linked at port level.

## Opening Edit Link from Location or Topology Tree

### Open Edit Link from the pull-down menu

When the Edit Link Worksheet is opened from an item in the tree all the ports will appear in the first column of the worksheet.

> **To open the Edit Link Worksheet from the pull-down menu**

1. Select and right click on the Item to edit the links, in either the Location or Topology Tree.  
A pull-down menu will appear.
2. Click on Edit Link.

**Note:**

*The first set of ports or single port will be placed in the first column with the static ports on the left and the dynamic ports on the right. With Auto Flip enabled, ports brought into the 2nd column will be correctly aligned, allowing linking to take place between two dynamic ports.*

The Edit Link worksheet opens:



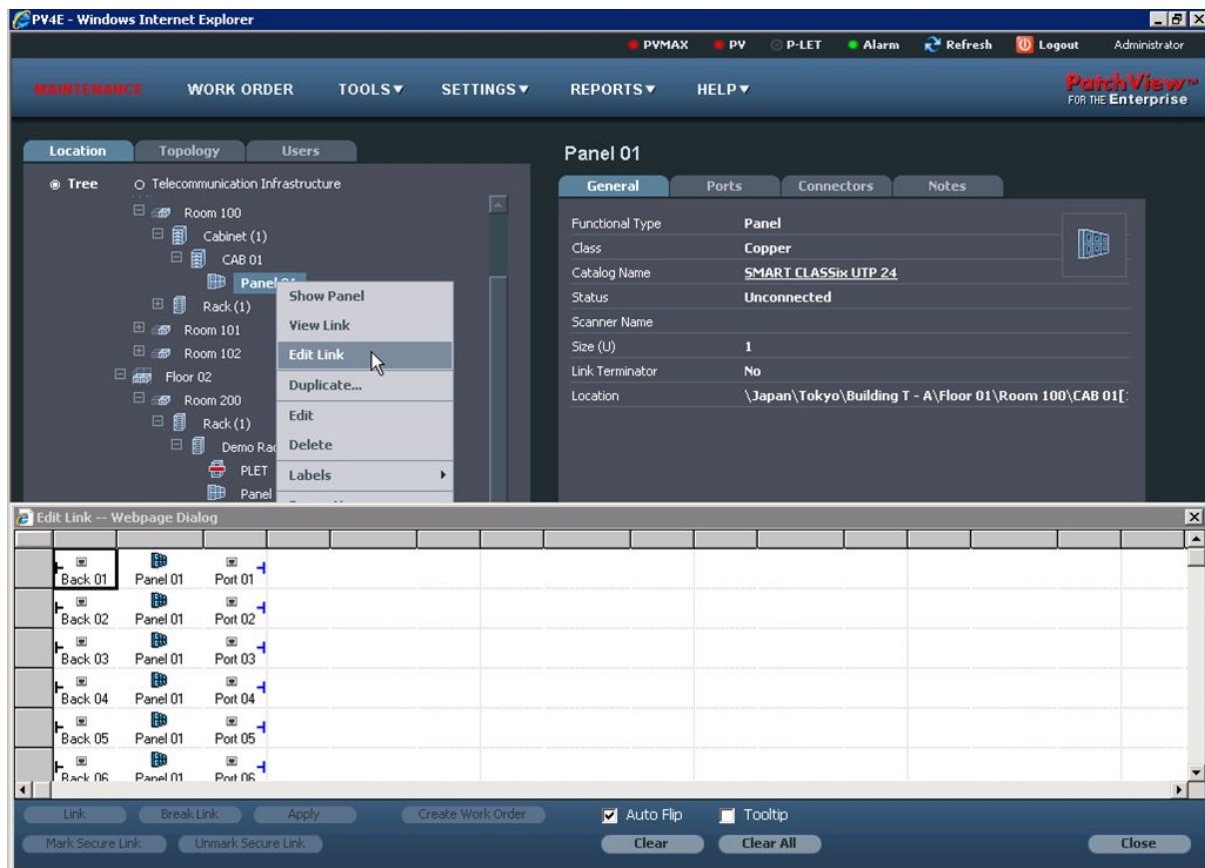


Figure 195 - Edit Link Worksheet


**Note:**

*All subsequent items or ports necessary to complete the linking process must be dragged and dropped into the worksheet. See Adding Additional Tasks to the Work Order in the Work Order and Managing Links chapter.*

## Open Edit Link from the Ports Tab

When the Edit Link Worksheet is opened from the Information Pane > Ports Tab, only a single port will appear in the first column of the worksheet.

### > To open the Edit Link Worksheet from the Ports tab

1. Select and highlight the Item in either the Location or Topology Tree.
2. Click on the Ports Tab.  
The selection indicator  will appear at the first port. Select the required port/s (use the scroll bar to locate it if necessary) and click on the gray box next to the required port.  
The indicator triangle will appear next to the correct port.  
Multiselect can be used. <Alt> for consecutive list and <Ctrl> for non-consecutive list.
3. Right click on the selected port/s and select Edit Link from the pull-down menu.  
The Edit Link Worksheet opens with the port/s in the first column.

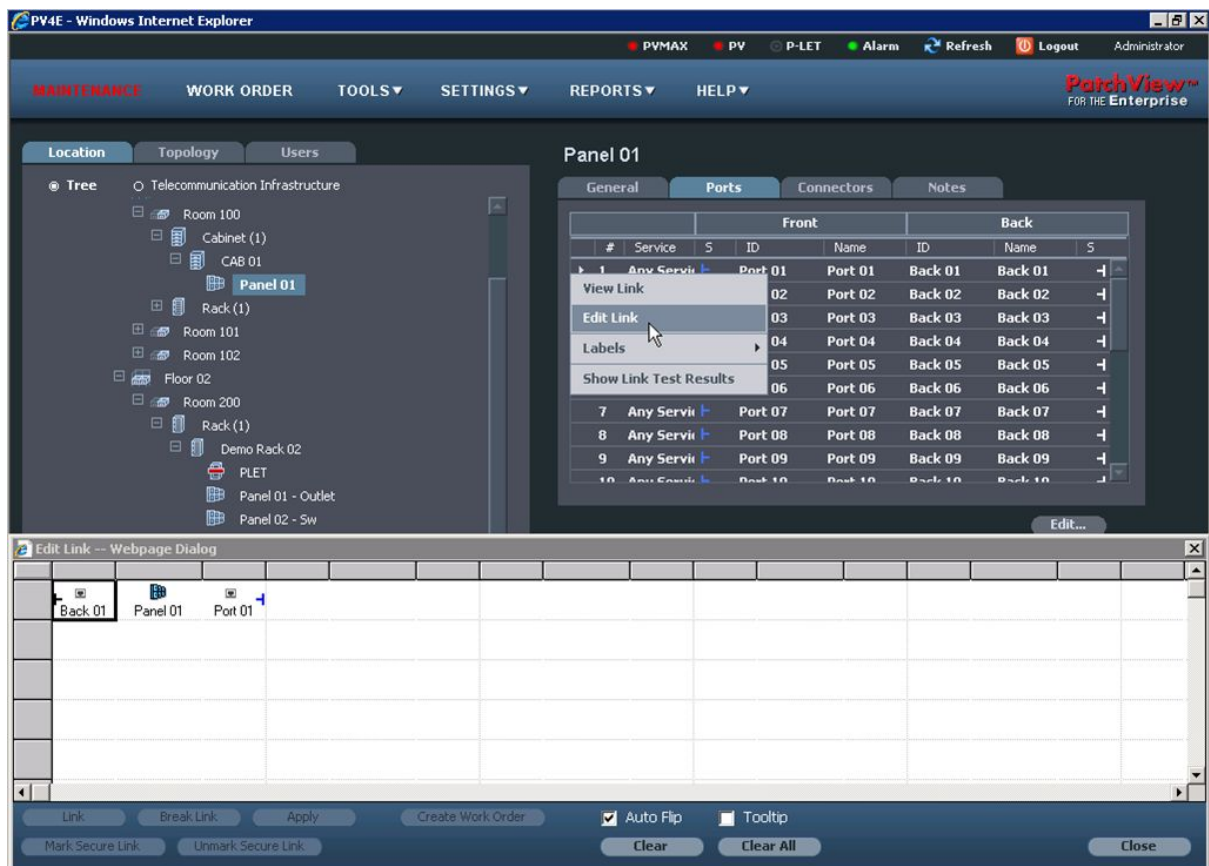


Figure 196 - Edit Link Worksheet with Ports

## Opening Edit Link using the Edit Link Button

- > **To open the Edit Link Worksheet using the Edit Link Button**
  1. Open Maintenance > Location or Topology.
  2. Position the cursor over the Edit Links button in the Toolbar and click.  
A blank Edit Link Worksheet will open.

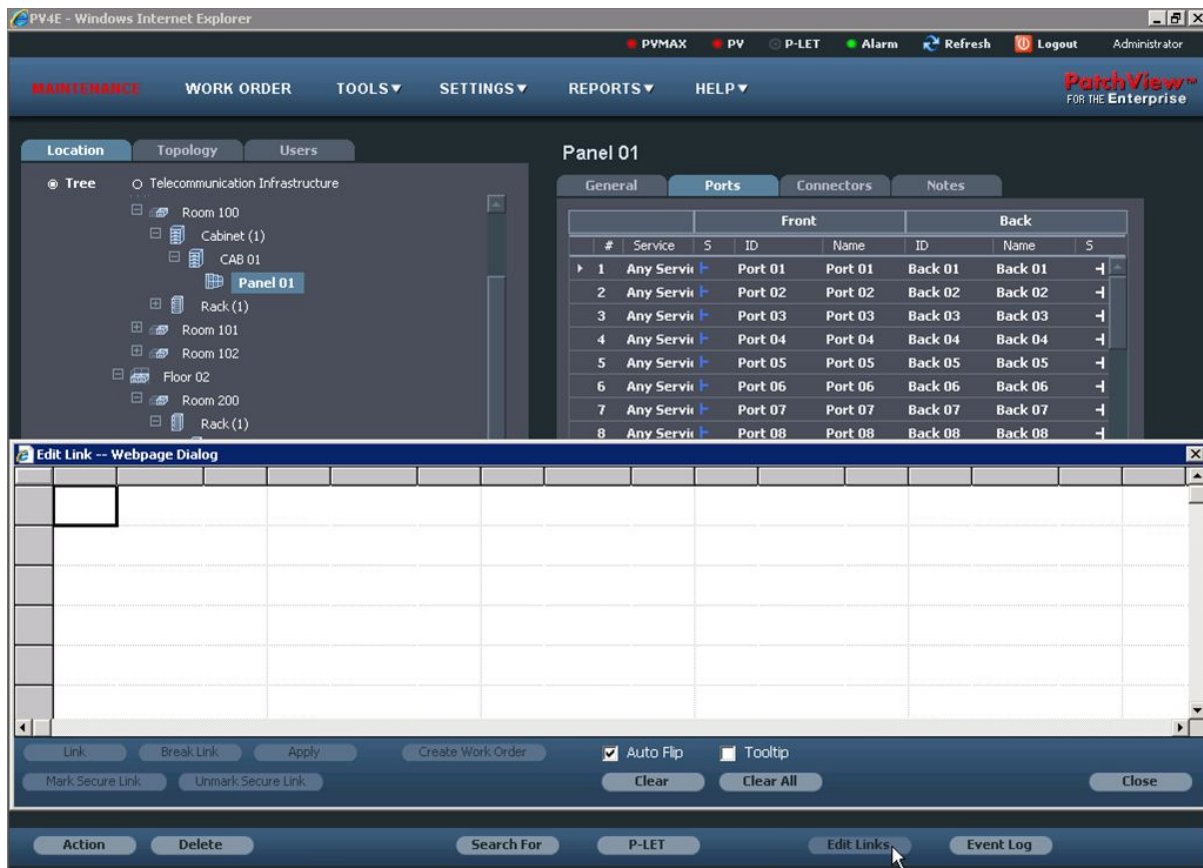


Figure 197 - Blank Edit Links Worksheet






Drag the required items or ports into the work sheet. See *Dragging and dropping an Item into an open Worksheet*.

## Resizing the Edit Link Worksheet

The Worksheet can be moved around the screen allowing you to view other information as required. Both the worksheet and the individual columns and rows can be resized.

### > To resize the dialog, individual columns and rows

1. Move the cursor over the dialog until it is positioned correctly. The following table shows the different shapes and functions of the cursor

CURSOR	FUNCTION
	Resize the width and height of the dialog
	Resize the columns
	Resize the rows
	Move the dialog
	Moves the selected Item/s from cell to cell within the dialog

## Adding Items or Ports to an open worksheet

Items and individual ports are added to the Edit Link Worksheet using the drag and drop method.

### Tip:

*More than one item or port can be added to the Edit Link Worksheet by holding down either the <Ctrl> or <Alt> keys and selecting the items or ports required.*

#### > Dragging and dropping an Item into an open Worksheet

1. Open an Edit Link Worksheet if one is not open.
2. In Maintenance > Location or Topology Tree, select the Item/s that you would like to add to the Edit Link Worksheet and position the cursor over the icon or one of the icons of the selection. Click on the item or selection.
3. Drag to the Edit Link Worksheet and drop in the required cell.  
The ports of the item/s will be added to the Edit Link Worksheet in the selected cells.

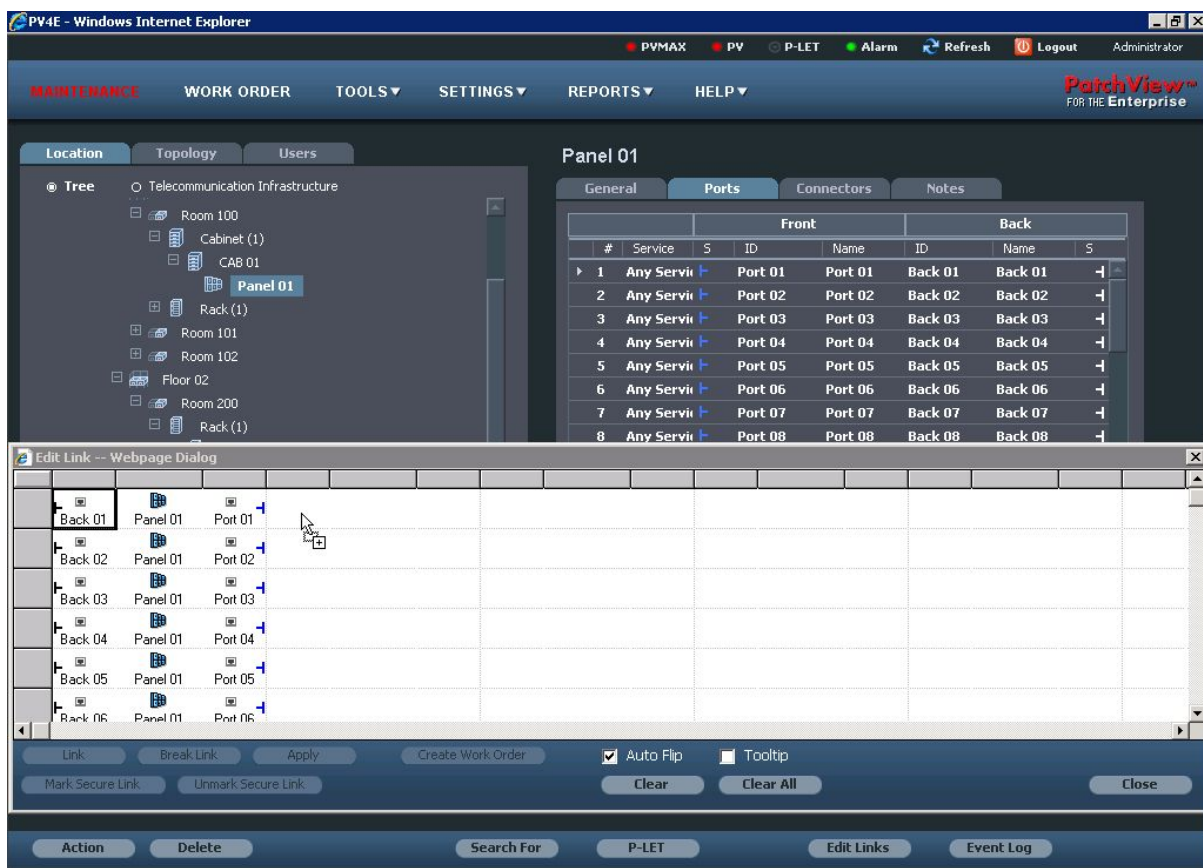




Figure 198 - Inserting an Item in an Open Worksheet

#### > To drag and drop a Port into an open Worksheet

1. Open an Edit Link Worksheet if one is not open.
2. Open the Ports tab in the Maintenance > Information Pane.
3. Select the Port/s that you would like to add to the Edit Link Worksheet.
4. The  indicator shows the ports that are selected.

- Position the cursor over the  indicator of the selected port/s and click on the item or selection Drag to the Edit Link Worksheet and drop in the required cell.  
The ports of the item/s will added to the Edit Link Worksheet

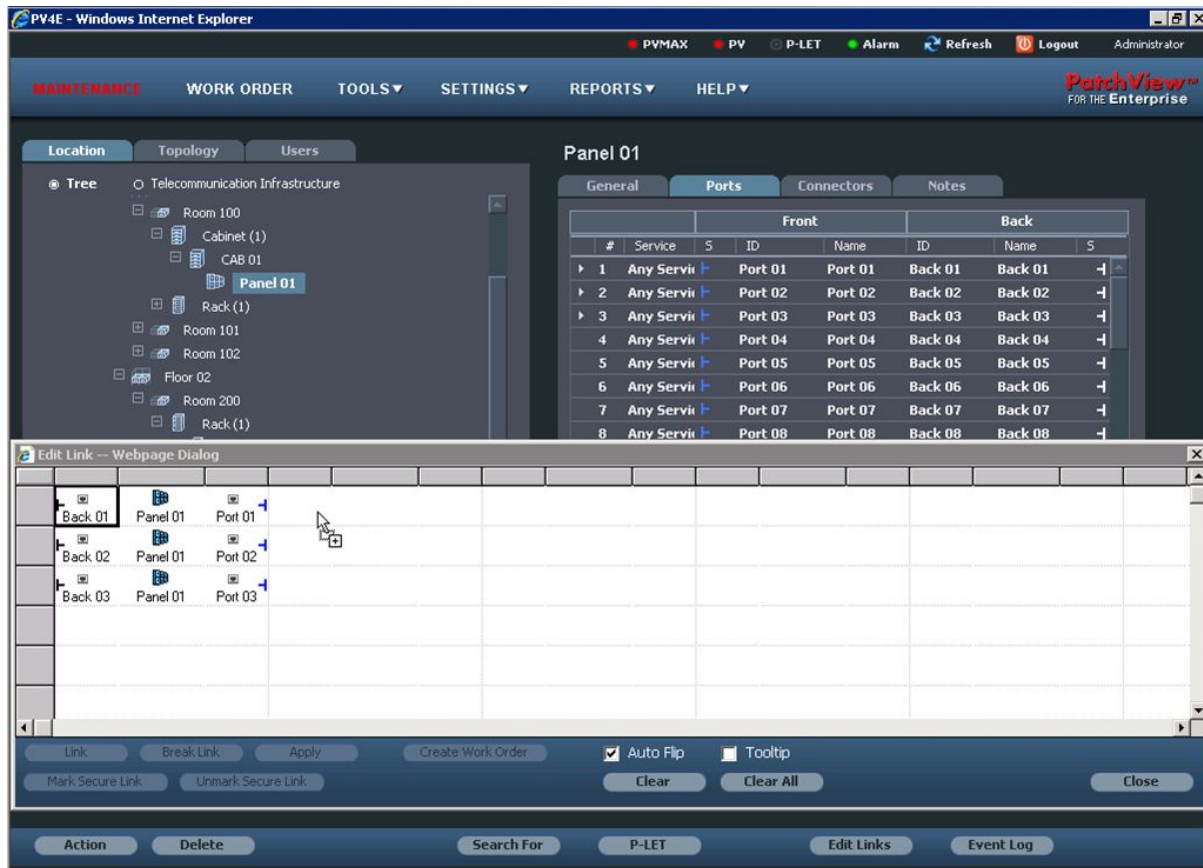


Figure 199 - Inserting a Port in an Open Worksheet



## Moving Ports around the Worksheet

Selected ports can be moved within the worksheet in 2 ways. Either drag and drop or to cut/copy and paste them into the new cells.

Ports can either be selected using the mouse to highlight all the ports required or a single port can be selected by moving the cursor over the cell, right clicking and choosing the Select Link option from the pull-down menu.

## Dragging and dropping selected ports within the worksheet

### > To drag and drop Ports in the Worksheet

- Select the Ports. The selected ports will have a black background with a white border.
- Move the cursor to the white border and press the left mouse button. The cursor changes from  to .
- Drag to the required cells and release the mouse button.  
The ports will be positioned in the new cells.



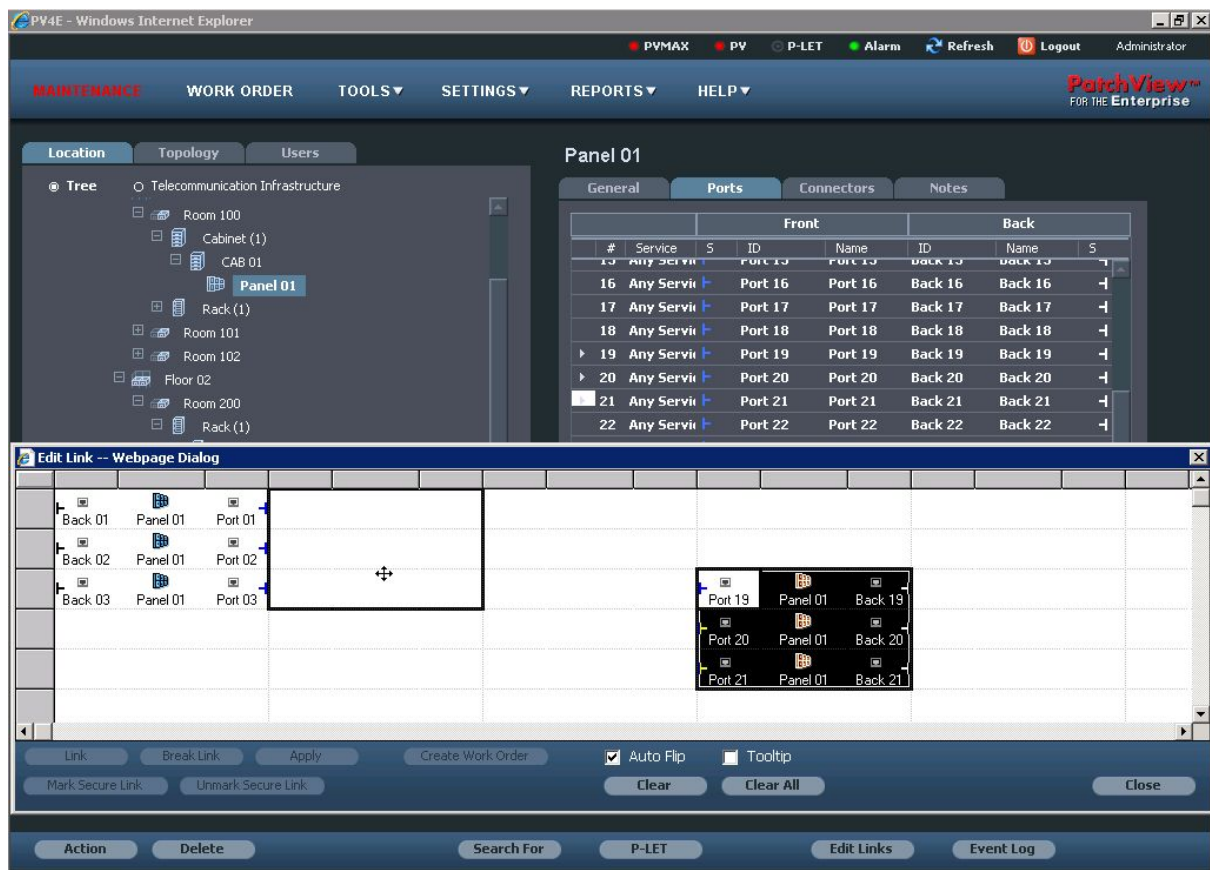


Figure 200 - Moving Ports around in a Worksheet Window

## Cutting/copying and pasting selected ports within the worksheet

### > To cut/copy and paste Ports in the Worksheet

1. Select the Ports and right click.
2. Select Cut or Copy from the pull-down menu.
3. Move the cursor to the required cell and right click.
4. Select Paste from the pull-down menu.  
The ports will be positioned in the new cells.

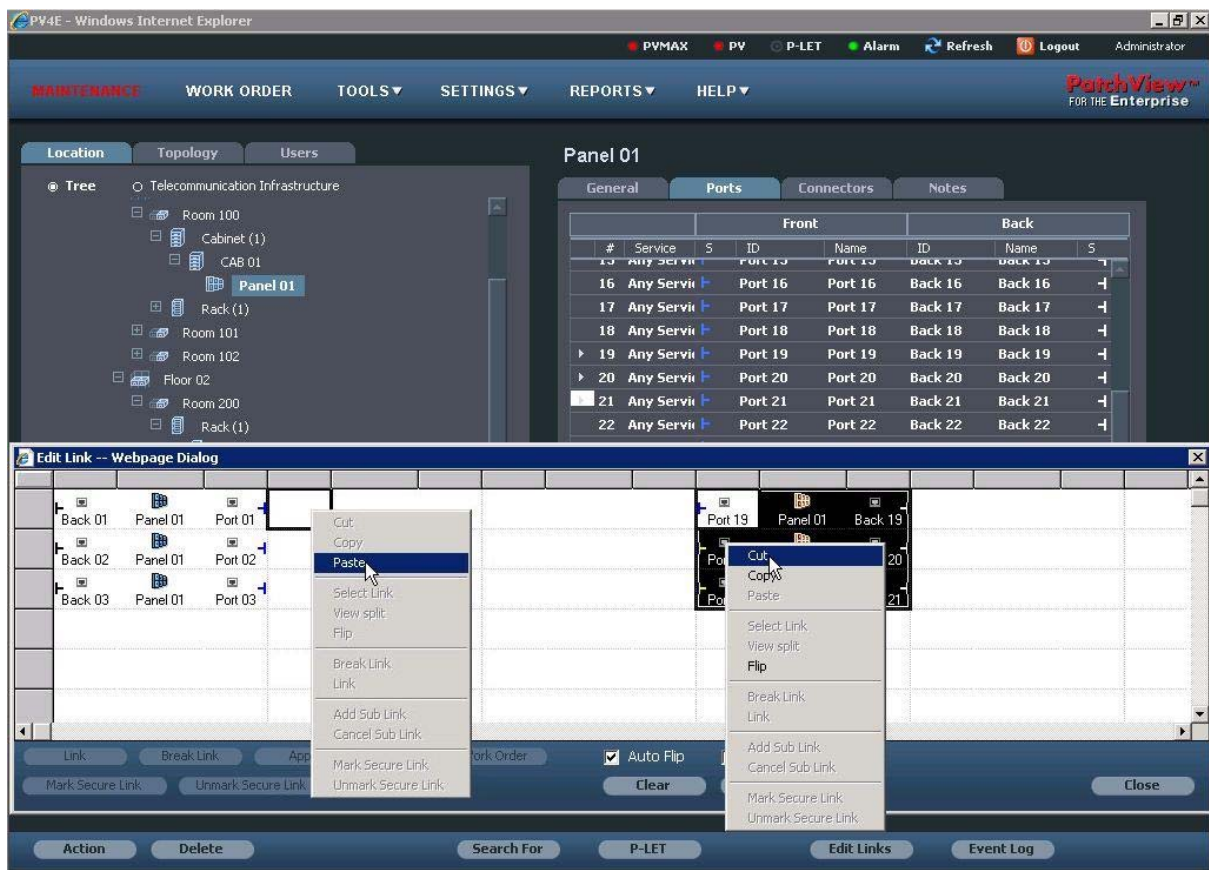


Figure 201 - Copying ports in a Worksheet

## Auto or Manual Flipping of Links

When links are created, the correct ports of the two items to be connected need to be positioned in adjoining cells.

With the Auto flip feature enabled the items are flipped so that the ports will automatically be correctly aligned.

Links can be manually flipped.

### Note:

*The Auto-flip feature flips the ports so that either static links are aligned next to each other or dynamic links are aligned. In the case of a link between a Patch Panel and a Switch, static and dynamic ports are linked and you must manually flip the link.*

## Using the Auto flip Feature

This Auto flip feature is either enabled or disabled by clicking on the button in the toolbar. This is located at the bottom of the Edit Link Worksheet.

### > To Enable Auto Flip

1. Check the checkbox of the Auto Flip button.
2. Drag and drop the item/ports into the required cell.  
The ports will be correctly aligned.

### > To Disable Auto Flip

1. Uncheck the checkbox on the Auto Flip button.

2. Drag and drop the item/ports into the required cell.
3. If necessary, select individual ports and manually flip the links

### Manually flipping the link/s

If the port of one item in the link is not facing the port you want to connect it to you will need to flip the link.

> **To Manually Flip a link**

1. Select the link/s that need to be flipped.
2. Right-click on the selection and select Flip from the pull-down menu.

**Tip:**














*Select complete columns by clicking on the header. Right click to flip all the contents of this column.*









PV4E flips the item so that the port is now aligned correctly.



## Link Status Symbols

In the Link Edit worksheet the Link status of the ports is indicated by color-coded symbol as follows:

SYMBOL	COLOR	INDICATES...
	Black	an existing static (off-line) link.
	Black	a reserved static (off-line) link in a work order. It is reserved and cannot be used in another link task
	Black	a request for a new static (off-line) link prior to implementation
	Black	an existing split link
	Black	a static (off-line) port
	Black	a static (off-line) port reserved in a work order
	Black	a request to break a static (off-line) link prior to implementation
<b>R</b>	Black	the item has a reserved status created in a work order.
	Blue	an existing dynamic (on-line) link
	Blue	a reserved dynamic (on-line) in a work order. it is reserved and cannot be used in another link task
	Blue	a pending dynamic (on-line) in the scanner
	Blue	a request for a new dynamic (on-line) link prior to implementation
	Blue	a pending dynamic (on-line) link in the scanner. it is reserved and cannot be used in another link task
	Blue	a dynamic (on-line) port

SYMBOL	COLOR	INDICATES...
	Blue	a dynamic (on-line) port reserved in a work order
	Blue	a pending dynamic (on-line) port in the scanner
	Blue	a request to break a dynamic (on-line) link prior to implementation
	Blue	a pending dynamic (on-line) link in the scanner. it is reserved and cannot be used in another link task
	Red	that the item is connected in an untraceable connection
	Green	that the item has a reserved status created in a work order. This symbol only appears in View Link.
	Blue	that the link is a secure link
	Red	a break in a secure link

## Edit Link Toolbar

The following table explains the functions of the buttons available in the Edit Link dialog.

BUTTON	FUNCTION
Link	Creates the link between the selected ports
Break Link	Breaks the link between the selected ports
Apply	Applies the changes made
Clear	Clears the selected items
Clear All	Clears all the Items in the Edit Link Worksheet
Auto Flip	When checked, automatically flip the item so that the ports face the correct position when brought into the Edit Link Worksheet
Tooltip	When checked, will show all the information relating to that particular port in a ToolTip box when the mouse is on the item

BUTTON	FUNCTION
Close	Closes the dialog
Create Work Order	Creates a Work Order directly from the Edit link Worksheet
Mark Secure Link	Mark the link as secure. Blue lock icons will appear on the secure link
Unmark Secure Link	Remove the secure link. The blue icons are removed

## Creating and Editing Links

When you create a link, it is displayed in the Edit Link worksheet. You can edit several links in the same session.

When you drop an item into the Edit Link worksheet, all items connected to it will appear, so that the complete link can be seen. Each link item is identified by its ID and associated icon. Click an icon in the View Link box to view information about the item. The information is displayed in the Information Panel. Or right click on the item for the tool tip to appear.

Commands for managing Links can be accessed either from a pull-down menu when the user selects and right clicks on an item in the Edit Link worksheet or from the function buttons found in the Toolbar.

As soon as you have applied the instructions in Edit Link by clicking the **Apply** button, the information is sent to the PatchView Scanners for immediate field implementation. Links that have not yet been implemented can be cancelled.

### **Note:**

*If you are not creating a link for immediate online implementation RiT recommends that you first create a Work Order and then create your links. See creating a Work Order in the Work Order and Managing Links Chapter.*

## Creating a Link

Static, Dynamic and Mixed links can be created. These links can be regular or secure links.

If a link is created between static ports or a combination of ports, i.e. a mixed link, the 'P' (pending) symbol will not appear.

It only appears for dynamic links where PatchView is on-line and the instruction has been sent directly to the panels. When the new link has physically been created on the Panel, the symbol changes to a solid line, to indicate that a physical link exists.

If PatchView is off-line the blue 'P' symbol will not show in the Edit Link Worksheet.

A secure link is defined as a link that has a switch port on one side and terminal equipment on the other side, and does not contain elements of an existing broken secure link. One or more links in the organization can be defined as vital links.

Attempts to change a secure link will result in the Administrator being prompted to confirm the change. All secure link activity is logged.



> **To create a Dynamic link**

1. In the Location or Topology Tree, locate and drag and drop the item/s you want to link into the Edit Link worksheet or select the item and click on the **Edit Links** button.  
Ensure that the ports are correctly aligned. Either use Auto flip enabled or manually flip the selected port. See *Auto or Manual Flipping of Links*.
2. Select the cells containing the ports that are to be linked.





Figure 202 - Creating a Dynamic Link



3. Click on the Link button.



The Link Status Symbols change from  to .



4. Create a Work Order (optional).

5. Click on the Apply button.

The Link Status Symbols change from  to  (only if PatchView is on-line).

6. After the links have been physically created on the Panels the Link Status Symbols change from  to .

The Link Status Symbols change from  to  (only if PatchView is on-line).

After the links have been physically created on the Panels the Link Status Symbols change from  to .


> **To create a Static link**

1. In the Location or Topology Tree, locate and drag and drop the item/s you want to link into the Edit Link worksheet or select the item and click on the **Edit Links** button.

Ensure that the ports are correctly aligned. Either use Auto flip enabled or manually flip the selected port. See *Auto or Manual Flipping of Links*.



2. Select the cells containing the ports that are to be linked.

3. Click on the Link button

The Link Status Symbols change from  to .

4. Create a Work Order (optional).



5. Click on the Apply button.

The Link Status Symbols change from  to .



> **To create a Mixed link**

1. In the Location or Topology Tree, locate and drag and drop the item/s you want to link into the Edit Link worksheet or select the item and click on the **Edit Links** button.  
Ensure that the ports are correctly aligned. Use only the manual flip option on the selected port, as Auto flip will position like to like. See *Auto or Manual Flipping of Links*.

2. Select the cells containing the ports that are to be linked.
3. Click on the Link button

The Link Status Symbols change from  to 

4. Create a Work Order (optional).
5. Click on the Apply button.

The Link Status Symbols change from  to 

## Secure Links

Links can be defined as Secure Links. Secure links allow you to define one or more vital links in the organization. PV4E closely monitors information on any change or problem that occurs on the secure link or on its end devices (station and switch port). This gives a higher level of control and management for vital links in the network, alerting you of any change in the secure link and minimizing the ability of unauthorized persons to make modifications to the connectivity. You receive an immediate indication on changes to secure links.

A secure link is defined as a link that has a switch port on one side and terminal equipment on the other side, and does not contain elements of an existing broken secure link. One or more links in the organization can be defined as secure links. An alert is issued and logged before performing activities on a secure link or when changes are physically performed in the field on any of the secure link devices.

You set secure links by marking links as secure during the Edit Link process when the links are defined, or by editing existing links and marking them as secure.

There are two reasons for creating a secure link. However, both require that a full link is initially defined:

A full secure link from a switch port to specific terminal equipment. This monitors for every component on the link.

A partial secure link from a switch port to an outlet. This monitors all components on the link apart from the terminal equipment.

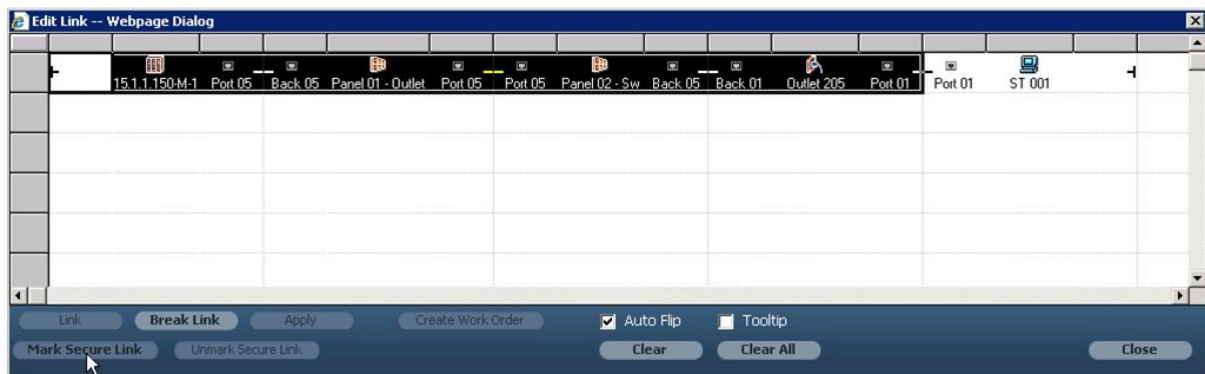
> **To mark a Link as a Secure link**

1. In the Location or Topology Tree, locate the items you want, right click and select **Edit Link**.
2. In the View/Edit Link dialog, select an entire valid link.
3. To make a full secure link, select the full link and click on the Mark Secure Link button.  
The entire link is marked as a secure link. The Always On field in the General tab of the Terminal Equipment is ticked.  
In the Edit Link dialog, blue lock icons indicate secure links. An event is generated in the log file.



*Figure 203 - Mark a Full Secure Link*

4. To make a partial secure link, select the link from the switch to the outlet and click on the Mark Secure Link button. This marks the entire link as a secure link. The Always On field in the General tab of the Terminal Equipment is not ticked. An event is generated in the log file.



*Figure 204 - Mark a Partial Secure Link Window*

The *lock* link status secure icons are now shown on the secure links:



*Figure 205 - Link path showing secure link icons*

## Viewing the Status of Secure Link Ports

To view the status of each port in a secure link on the panel display, go to the panel in the Location Tree, right click on the panel and select **Show Panel**.

The virtual panel displays a blue lock (as indicated by the arrow) for a port that is part of a secure link.

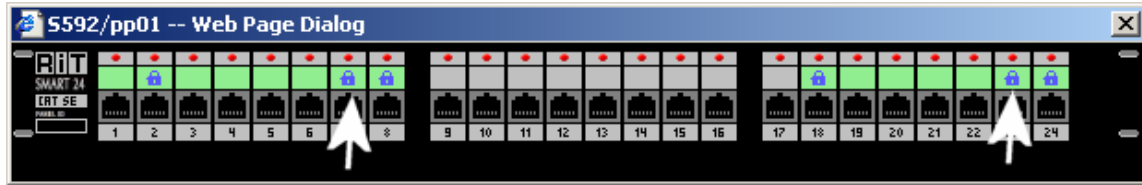


Figure 206 - View panel showing secure links

PV4E constantly monitors the integrity of secure links. If the patch cord on a secure link is disconnected or if a static part of the connectivity is damaged, an alert message is generated warning the IT Manager of a connectivity problem in the secure link.

For example, disconnecting a patch cord to a secure port breaks the secure link. The Events view displays the appropriate event and the system administrator can quickly trace the problem.

In the patch panel above, if a patch cord connecting ports 7 and 23 is disconnected from either port, the lock on the port turns from blue to red:

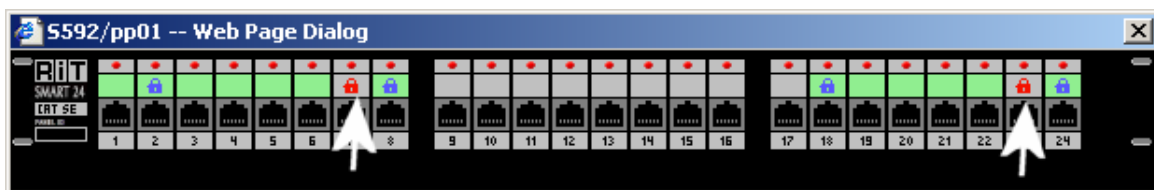



Figure 207 - View panel showing location of broken secure links

The red lock icon  is also displayed when viewing or editing the broken links (as indicated by the arrow). This immediate detection allows the administrator to quickly assign resources to investigate and resolve the break.

## Breaking of Secure Links

Breaking links are generally generated either when the actual physical connection is removed from the panel or a PV4E user removes the link in the application (Edit Link).

A warning message is immediately issued as soon as a secure link is broken. If the link is broken, the event is logged.

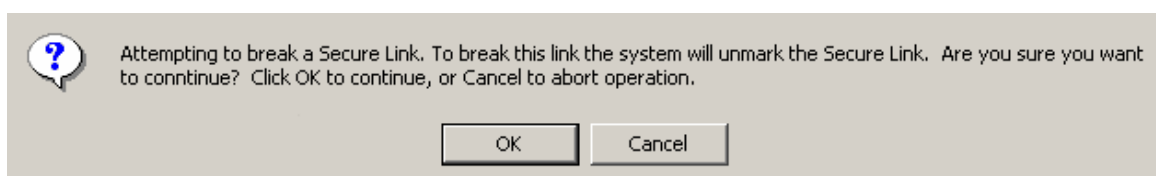
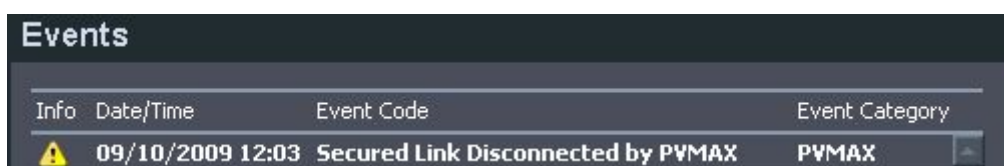


Figure 208 - Warning message- Attempt to Break Secure Link



*Figure 209 - Event Log - Secure Link Disconnected*

The IT manager can view the log entry and trace the affected link.

> **To Unmark a Secure Link**

1. Right-click on the item and click on **Edit Link**.  
The Edit Link dialog opens.
2. Using the mouse, highlight at any place on a secure link.
3. Click on the Unmark Secure Link button. Since the intention is to unmark the link and not break it, a warning message is not issued in this case. Still, the unmarking event is logged.







Events			
Info	Date/Time	Event Code	Event Category
	09/09/2009 04:36	Secured Link Unmarked	Secure Link 

*Figure 210 - Log Entry Shows Warning Message -Unmarked Secure Link*

## Breaking a Link

Breaking a link means disconnecting an existing link.



> **To break a Dynamic link**

1. In the Location or Topology Tree, locate the item or ports where the links need to be disconnected. Drag and drop the item/ports into the Edit Link worksheet or select the ports and click on the **Edit Links** button.  
The item/ports will appear in the worksheet with all the ports that it is currently linked to.
2. Select the cells containing the links that are to be broken.
3. Click on the Break Link button. The Link Status Symbols change  
from  to .
4. Create a Work Order (optional).
5. Click on the Apply button. The Link Status Symbols change from  to  (only if PatchView is on-line). After the links have been physically created on the Panels the Link Status Symbols change from  to .





> **To break a Static link**

1. In the Location or Topology Tree, locate the item or ports where the links need to be disconnected. Drag and drop the item/ports into the Edit Link worksheet or select the ports and click on the **Edit Links** button.  
The item/ports will appear in the worksheet with all the ports that it is currently linked to.
2. Select the cells containing the ports that are to be linked.
3. Click on the Break Link button.



The Link Status Symbols change from  to .

4. Create a Work Order (optional).
5. Click on the Apply button.



The Link Status Symbols change from  to .

> **To break a Mixed link**

1. In the Location or Topology Tree, locate the item or ports where the links need to be disconnected. Drag and drop the item/ports into the Edit Link worksheet or select the ports and click on the **Edit Links** button.  
The item/ports will appear in the worksheet with all the ports that it is currently linked to.
2. Select the cells containing the ports that are to be linked.
3. Click on the Break Link button.

The Link Status Symbols change from  to .

4. Create a Work Order (optional).
5. Click on the Apply button.

The Link Status Symbols change from  to .

## Canceling a Dynamic Link

An edit link task that has been created and is part of an existing Edit Link Worksheet can be cancelled, if its status is Pending.

This occurs after the **Apply** button has been clicked.

The **Close** button will close the Edit Link Worksheet and cancel all tasks that have not been saved by the Apply function

If, for example, you have broken a link between two items and you decide to go back and re-establish the link, you cannot do so until the task has been either cancelled or completed. Until then, the items involved in the link are reserved as pending and cannot be used for any other task.

> **To cancel a dynamic link**

**Note:**

*All pending links in the worksheet will be cancelled with this process.*

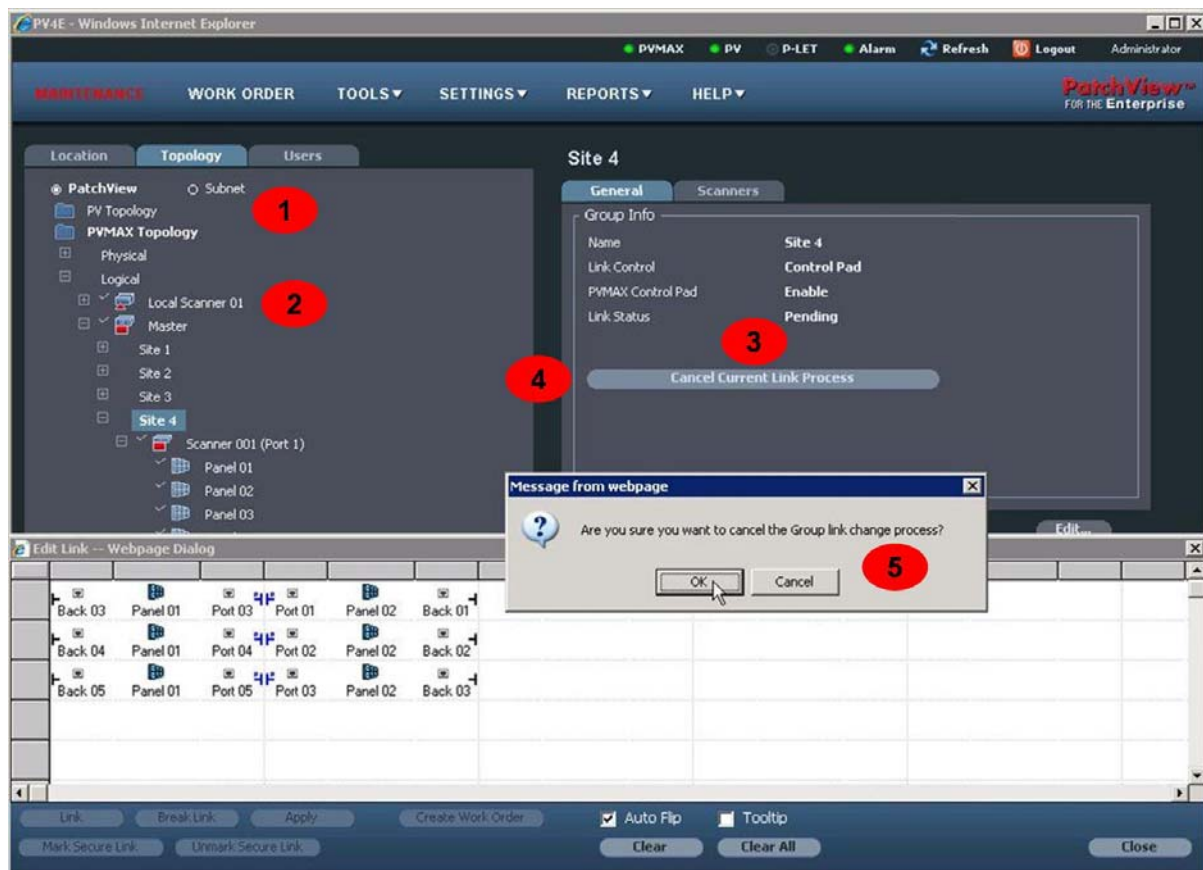


Figure 211 - Cancelling a Link Window

1. Click to select the Topology Tab
2. Select the site/group in the Topology Tree where the links that are to be cancelled are located.
3. The Information pane opens with the General information relating to the site. The Pending indicator is on.
4. Click on the Cancel Current Link Process button.  
A confirmation message appears.
5. Click on the **OK** button

## Clearing the Link Edit Worksheet

### Note:

*If the Links are in the pending status, using the clear buttons will clear the cells in the worksheet, but maintain the new link information, as the task has already been sent to the panels.*

*If the clear buttons are used prior to the apply function being activated, the new link tasks will not be saved.*

There are two methods of clearing the cells in the Edit Link Worksheet

The **Clear** button will clear selected cells and the **Clear All** button will clear the entire worksheet.

## View Items, Panels, Ports and Links

A Graphical representation of all connections to and from an Item, Panel, Port or Link can be viewed in the View Link window. The Port Status can be viewed in the View Panel window.

The View Link window can be accessed from many different locations.

For example:

Location and Topology

Show Panels





Graphic display of Racks, Panels and ports

Search

Port Tab

## Port Status Indicators

The Panel Ports are color-coded to indicate their current connectivity status. According to port status, you can tell if a port is currently linked to another item or not. Only unconnected ports can be used in new links.

PORT	COLOR	INDICATES...
	Grey	The port is currently unconnected
	Green	The port is currently connected to another port
	Yellow	Untraceable connection
	Orange	The port is currently offline

## View Link from Location or Topology

- > **To view the View Link Window from the Location or Topology Tree**
  1. Select and right click on an Item in the Location or Topology tree, or a Port in the Ports tab.  
A pull-down menu will appear.
  2. Select View Link.  
The View Link Window will open

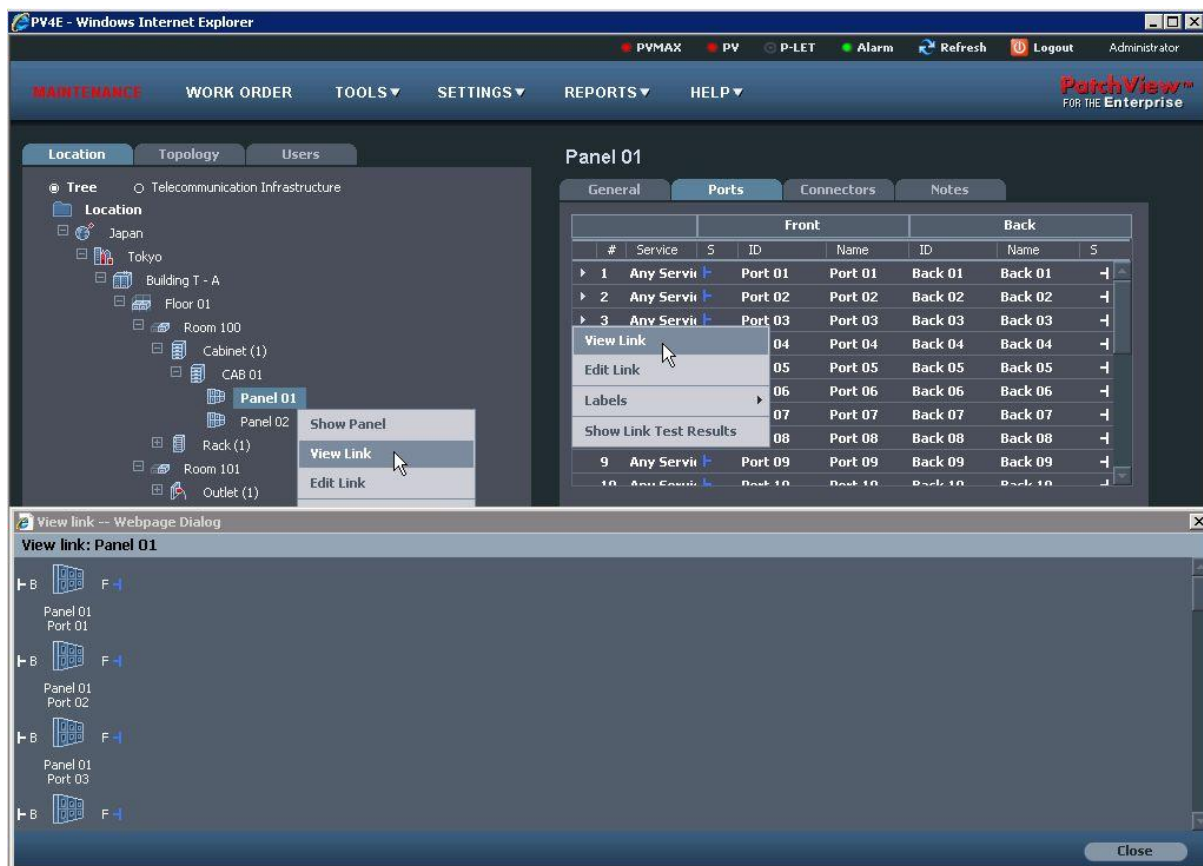


Figure 212 - View Link

## View Link from a Panel

- > **To view the View Link Window from a Panel**
  1. Select and right click on a Panel in the Location or Topology Tree. A pull-down menu will appear.
  2. Select Show Panel.  
The graphical representation of the panel will open.
  3. Click on a Port to open the View Link Window.

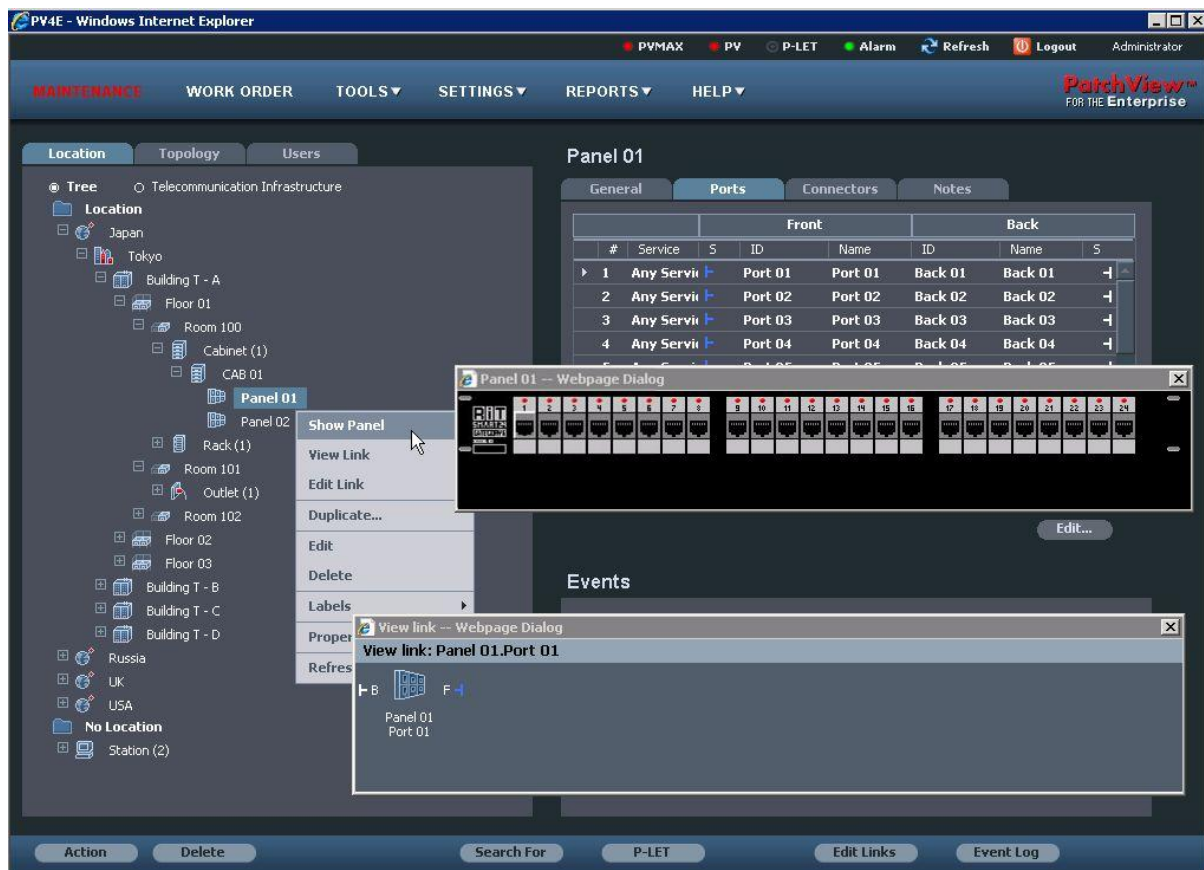


Figure 213 - View Link Window from a Panel

## Viewing Information about an Item in the Link

You can view the details about every item in a link, as they appear in the Inventory dialog for that item. The Items can be edited if required.

### > To view information about an item in a link

1. Open the View Link Window.
2. Click on the Item that you require the information on.  
The information appears in the Information Pane.
3. Click on one of the Tabs or the Edit button.  
The Add/Edit Inventory Item dialog opens.

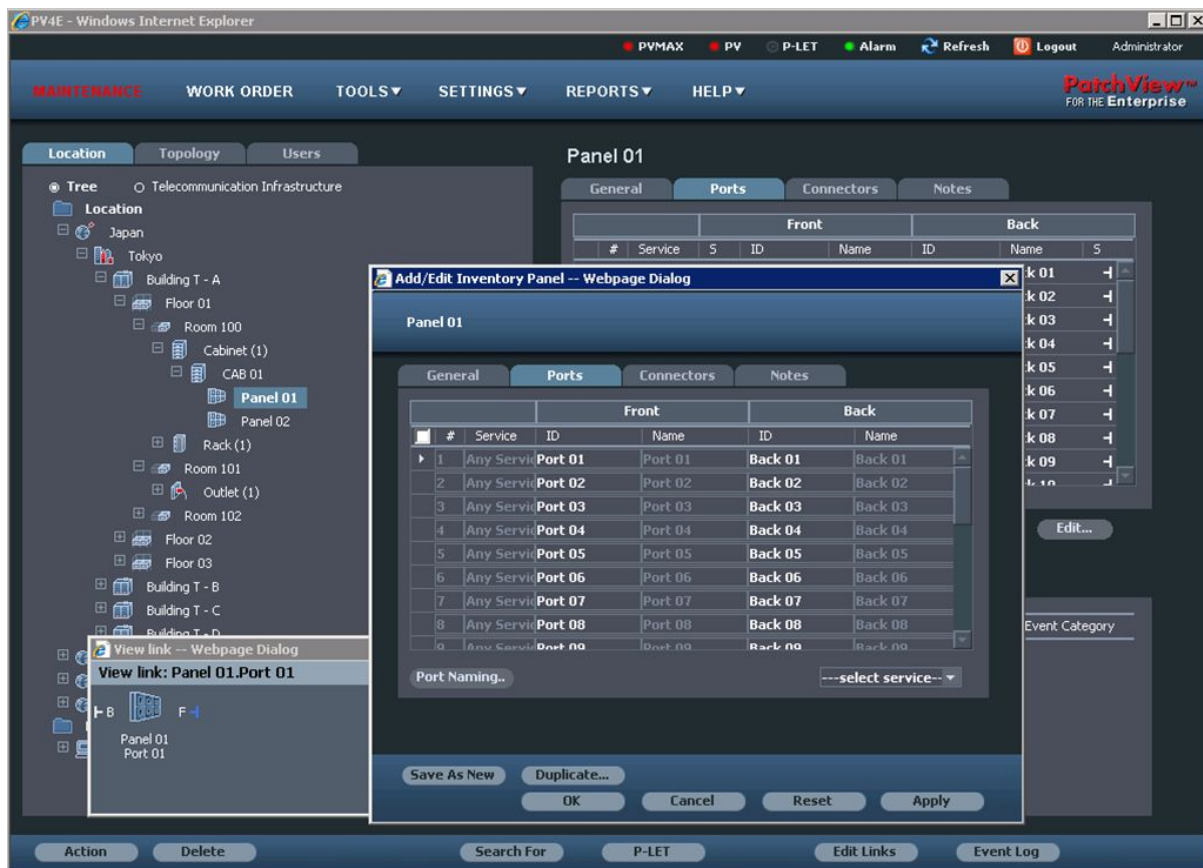


Figure 214 - Add/Edit Inventory Item dialog

4. Select one of the options to continue.

## Full Links

These are P-LET supported links. The P-LET technology detects the physical connectivity of active network elements. The system detects all the ports of the Switches in the network and if the ports are connected to an Outlet or not. Once an Outlet is discovered as being active, information about Stations connected to the Outlet is also available. The Outlets location is automatically assigned to the Station.

In order for you to benefit fully from all the PatchView for the Enterprise P-LET features RiT recommends the following work flow with regard to the Outlets and Stations.

1. On installation of PV4E run the LAN Mapper. Stations and their related data are discovered by the LAN Mapper and are inserted into the PV4E database.
2. Define all the Switches in the network.
3. Using the Edit Link Worksheet define a Full link for each Switch port in the network. A Full link is a link from Outlet to Switch port. For example:



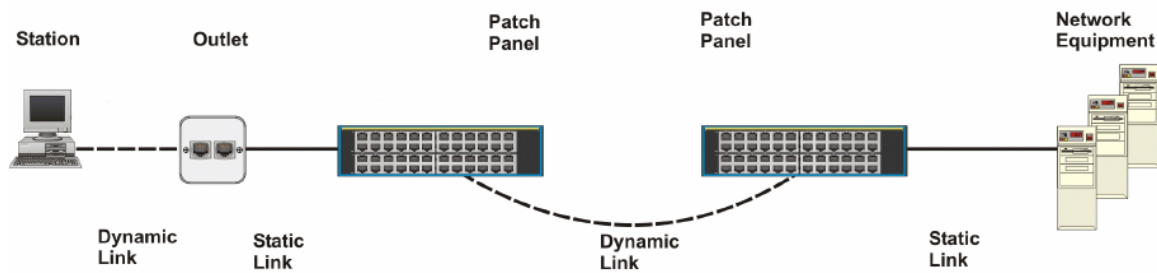


Figure 215 - Full Link

**Note:**

*There is no need to include Stations when defining Full links. A Station is automatically added to a link by P-LET when the Station is connected to an Outlet.*

4. Define the P-LET Settings for the LAN Server and for the LAN Mapper modules.
5. Run the LAN Server. The Stations appear in the Location Tree and a reference of this station will be placed in the Catalog if it was not previously defined.
6. The P-LET module identifies all the Stations in the network according to the following parameters:  
Station MAC address; IP Address; Host Name; Station Service type.  
Active Stations are compared to the database and if a discovered Station is not part of a Full link it is identified as an Unmanaged Device.

## Split Links

Split links are supported by P-LET. Split links enable more than one link to be connected to the same connecting hardware item (outlet or panel). This allows two or more Stations to be connected to the same outlet or panel.

In order for you to benefit fully from all the PatchView for the Enterprise P-LET features, RiT recommends the following work flow with regard to the Outlets and Stations.


1. After the Full links have been defined, in the Edit Link Worksheet, define a split link for each desired Outlet port in the network. Right-click the desired Port and select Add Sub Link.  
The split link appears in the Edit Link Worksheet with a  link symbol.



Figure 216 - Edit Link Window - Split Link

2. To view the details of the split link, right-click the Port and select View Split.  
The details of the split link appear in the View link window.

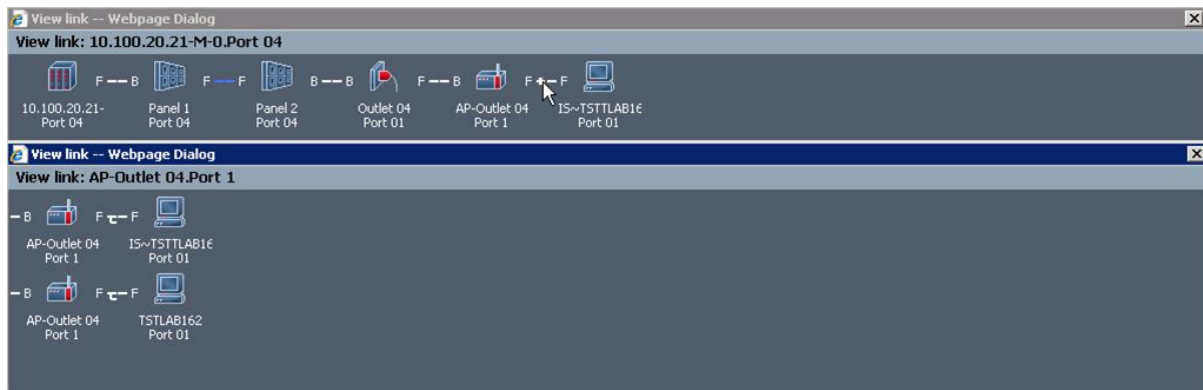


Figure 217 - View Link Window – Split Link

## KVM Links

KVM devices enable a station and monitor to be connected, even if they are not in the same location.

1. After the KVM device and the station have been added to the Location tree, in the Edit Link Worksheet, create a link between the KVM device and the station.

The KVM link appears in the Edit Link Worksheet with a  link symbol.



Figure 218 - Edit Link Window - KVM Link

2. To view the details of the KVM link, right-click the Station or KVM device and select View Link.

The details of the KVM link appear in the View link window.

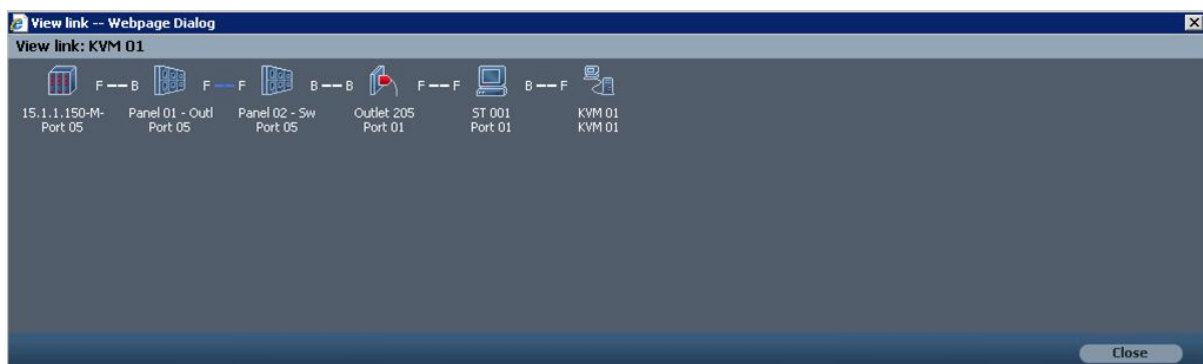


Figure 219 - View Link Window - KVM Link



## Chapter 7: Automated Provisioning

The PV4E solution offers a fully automated, integrated Provisioning tool. RiT's automated Provisioning tool enables you to assign system resources in a fully automated environment and has been designed to significantly improve the planning and implementation of the provisioning process for data centers and people space environments.

### General

The Provisioning module provides you with various tools that speed deployment and reduces the amount of time spent on planning and implementing tasks; therefore, reducing the number of errors and the time needed for manual work while increasing accuracy.

The Provisioning feature provides a simple method for planning and executing MACs, (moves, adds, changes) and also includes Swap and Remove operation requests.

### Features

The provisioning module includes a host of innovative features such as Next Available Service Algorithms, Work Orders and Customer Configured Policies.

These features support the execution of the provisioning operations described below:

#### ■ Move

Allows you to generate a Work Order (or partial Work Order) that contains the specific tasks needed for moving a selected device(s) from an A to B location.

The *Move* request keeps the same services that were associated with the moved device(s).

#### ■ Add

Allows you to generate a Work Order (or partial Work Order) that contains the specific tasks needed for adding a new device(s) into location. The *Add* request sets the services to the newly added device(s), according to its equipment type and customer request.

For the datacenter environment, the *Add* request also supports the service of cabinet selection based on both predefined and user defined policies.

PV4E version 6.0 also supports the option to provision a new device while utilizing only part of its network adapters.

#### ■ Change

Allows you to generate a Work Order (or partial Work Order) that contains the specific tasks needed for changing a service or VLAN of device(s)

PV4E version 6.0 also allocates new links for unused network adapters for existing devices.

#### ■ Swap

Allows you to generate a Work Order (or partial Work Order) that contains the specific tasks needed for performing a swap between two devices or two workspaces.

#### ■ Remove

Allows you to generate a Work Order (or partial Work Order) that contains the specific tasks needed for removing device(s).

When a provisioning request is fully processed, a Work Order is automatically created. The Work Order contains all relevant tasks for the specific request. The tasks are generated according to specific rules, you can also pre-configure some of these rules.

Graphical features of the automated provisioning module include a drag-and-drop functionality that allows you to simply drag-and-drop any terminal equipment device or workspace from one location to another. The point and click function using the right mouse-click can also be used.

## Workspace Definition

The automated provisioning module introduces the Workspace terminology.

A workspace is a logical attribute which can be associated with any location of type Room\Cubicle\Other.

When any of the location types above is decorated with this attribute, PV4E knows that it can refer to the decorated location as container of potentially provisioned items. Therefore, the decorated location can be part of provisioning request which applies for all the relevant devices hosted in this location.

For example, when moving a workspace to a new location, all associated items are moved, for example, IP phone, printer etc,. However, you can also select one or two items under the selected workspace and move them separately.

A location that has been defined as workspace is identified by a checkmark in the Workspace field. See the following screen.

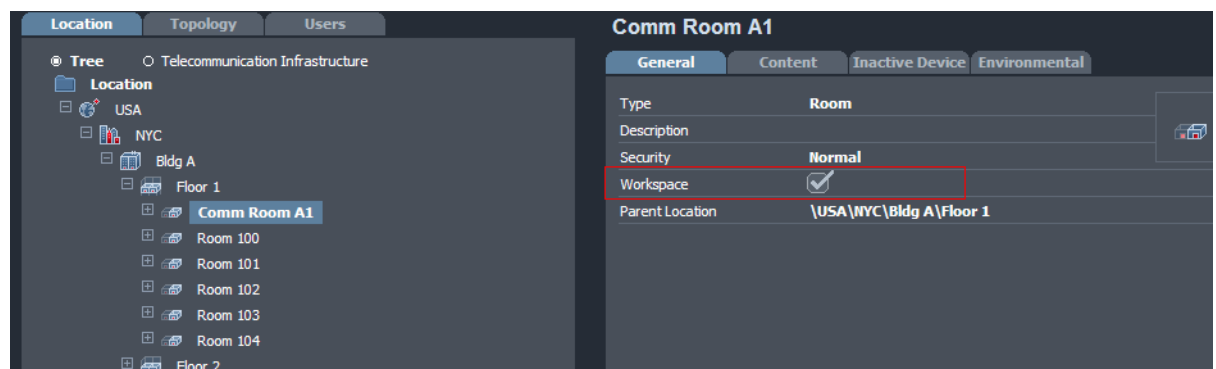


Figure 220 - Work Order Screen –General screen

## Services Definitions

A Service is a tag which sub divides the physical layer into separated segments.

Defining Services adds a filter to the rules embedded within the system. You can only connect ports (such as outlets, switch ports or network adapters) that are defined with the same service type.

Devices, by default, are defined with the Service type *Service Any*. You can connect *Service Any* to all other service types and all other service types can be connected to *Service Any*.

Another service type which comes out of the box is the *No service* service which is being used to disqualify specific adapter from a provisioning request.

## Connectivity Zone Definitions

A *Connectivity Zone* is a collection of panels/ ports within panels. The automated provisioning module restricts connectivity only between panels/ports which belong to the same connectivity zone.

Each panel can be defined as part of one or many groups.

## Provisioning Rules

In order to allocate the best resources according to the organization's policy the automated provisioning has several sets of rules:

### Filtering Rules

This set of rules is intended to eliminate any elements which do not comply with the specific provisioning request criteria.

The automated provisioning is deployed with the following filtering rules by default:

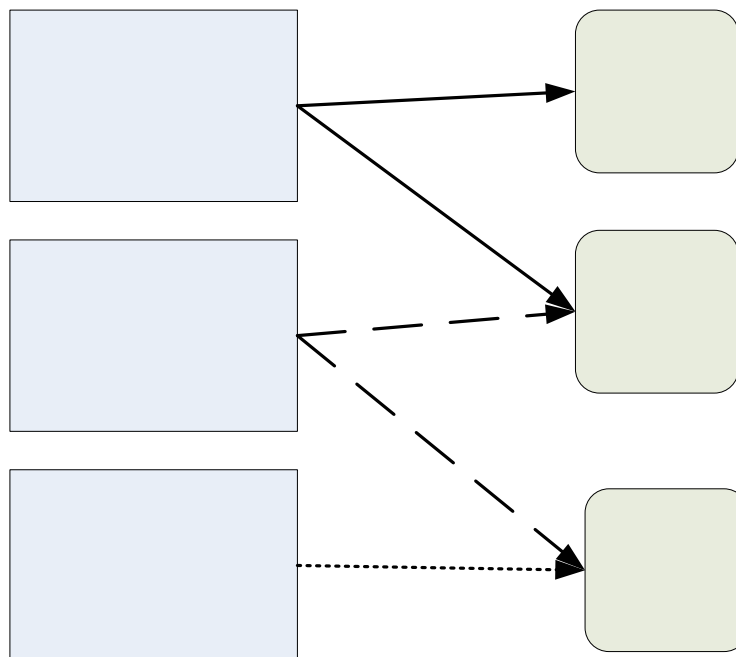
- Service filtering rule – This rule eliminates any link item (outlet port, switch **port** etc.) whose service does not match the service required for the specific request. For example, if you want to move a device with service *Red* to location which has only outlets with service *Green* then all the outlets are disqualified and the request fails.
- VLAN filtering rule – This rule eliminates any link switch port whose VLAN does not match the VLAN required for the specific request. For example, consider a scenario where the user wants to move a device with VLAN '120' to a different room. If the target room can be fed with **VLAN** '120' then the provisioning request fails.
- Outlet filtering rule – In some cases, a provisioning request will require that the newly created link should go through a specific outlet. In this case, any other outlet in the target location is to be eliminated.

### Grading Rules

This set of rules is intended to filter the resources that apply to specific provisioning requests. The provisioning module calculates a grade per resources. The grade is a mean average of the entire set of grading rules.

The automated provisioning is deployed with the following grading rules by default:

- *Minimum patching* grading rule – This rule give the highest grade to the link which require minimal patching. For example, if the system offers you two optional links for a *move* request and one of them is already patched then this rule will prefer it over the other one.
- *Best fit service* grading rule – The purpose of this rule is to maximize resources. Consider a scenario where a device with service *Any service* is provisioned to a room with two outlets, one offering the *Red* service and the other one offers the *Any service* service. The provisioned device fits the two of them; however the system will favor the outlet with the *Red* service. Thus, future provisioning requests to this room will not suffer from lack of service since the application left the *Any service* available for future provisioning requests.
- *Best fit VLAN* grading rule – The purpose of this rule is to maximize resources. Consider a scenario where a device which requires VLAN '111' is provisioned to a room. Links from this room can be connected to switch port with VLAN '111' or switch port with VLAN's '111' and '112'. The provisioned device fits the two of them; however the system will favor the switch port with service '111'. This will allow future provisioning requests with VLAN '112' to be addressed rather than denied.
- *Original outlet filtering* rule – The purpose of the automated provisioning engine is to ease the provisioning process as much as possible. Therefore, is a specific request can be addressed while not moving the device to a different outlet then the system will favor this outlet.
- *Least popular outlet port* – Consider the following provisioning scenario illustrated in the figure below :



The illustration describes three devices being provisioned simultaneously to a room with 3 outlets. Device 1 can be provisioned to either outlet A or B, Device 2 can be provisioned to outlet B or C and Device 3 can be provisioned to outlet C solely. Since the request are being executed simultaneously there might be a case where Device 1 is connected to outlet B, device 2 is connected to outlet C and device 3 will not be allocated with an outlet. This

rule overcomes this problem by allocating the least popular outlet (In this case Outlet c) before every other outlet.

## Operation Generation Rules

The operation generation rules generate a list of tasks for each request based on the relevant information. For example, if a workstation and printer are selected for move, the rules for workstation and printer are executed.

The output of this process is a Work Order containing operations that contain tasks. You can sort the Work Order tasks according to one of their properties (e.g. type, assignee, etc.). The Work Order production is ruled by the defined policies in the system.

## User Defined Rules

In addition to the out-of-the-box rules, the automated Provisioning module has a highly flexible engine which allows adding user defined rules to the system without a need of rebuilding the application. For additional information contact a RiT representative.

## Work Orders and Tasks

The output of a provisioning request is a work order. A work order is a set of tasks that have to be carried out in order to implement Move\Add\Change\Swap\Remove activity to one or more terminal equipments. The tasks are divided into two major categories:

1. Online tasks – Tasks which can be automatically monitored by RiT's smart cabling. These tasks are the *Break Link* and *Link* tasks.
2. Offline tasks – Tasks which can not be automatically monitored for their completion. You have control over the offline tasks and can set new tasks without the need for R&D intervention.

## Provisioning module – General orientation

This section gives an overview of the provisioning module major screen and views.

### Location Tab

The Location tab in the *Work Order* screen is where the inventory is viewed and the different provisioning requests are generated.

The buttons on the toolbar are grey for inactive, orange for active.

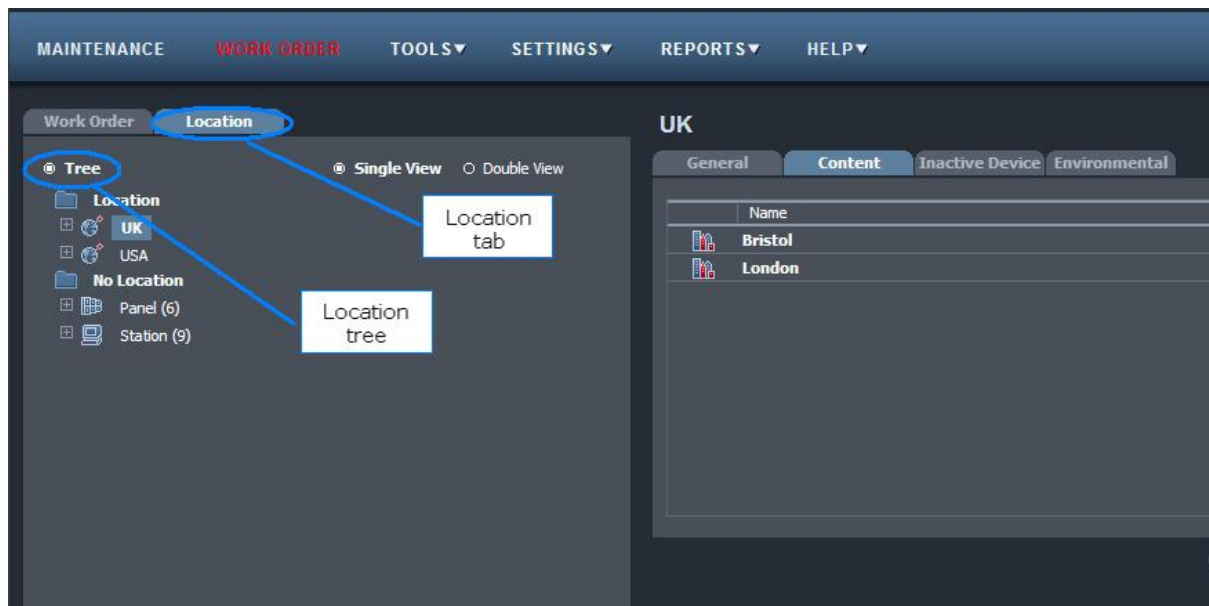





Figure 221 Work Order Screen – Location Tab

## Location Tree

The system Tree in the *Location* tab of the *Work Order* screen provides a graphic representation of the hierarchy of the database. It has been designed to facilitate easy navigation through different levels. Each device type has its own distinctive icon for easy recognition.

The following table describes how the mouse icon changes during a drag-and-drop move:

Icon	Description
	Normal mouse icon, used to select the items to be moved.
	When the items can not be dropped at the selected location in the tree.
	When the item can be dropped to its new location in the tree.

**Note:**

*An item cannot be moved to **No Location***

## Multiple Selections

More than one item can be selected and moved.

To multi-select a group, hold down the Alt key and select using the mouse.

To select several items, not in succession, hold down the Ctrl key and select using the mouse.

## Single View/Double View in the Work Order Location Tree

☒ Single View ☐ Double View

There are two options in the Location tab window for moving devices:

- Single View
- Double View

## Single View

The **Single View** screen opens by default.

> **To move around the tree using the Single View Screen:**

1. Click the plus sign icon (+) to expand the next node level.
2. Click the minus sign icon (-) to collapse the lower levels.

Using the *Single View* option, select the device from the Location tree on the left-hand side of the screen and drag it up or down to a new location in the tree. The *General* tab on the right hand side of the screen displays the device properties.

The following screen displays the *Single View* option and the General tab attributes:

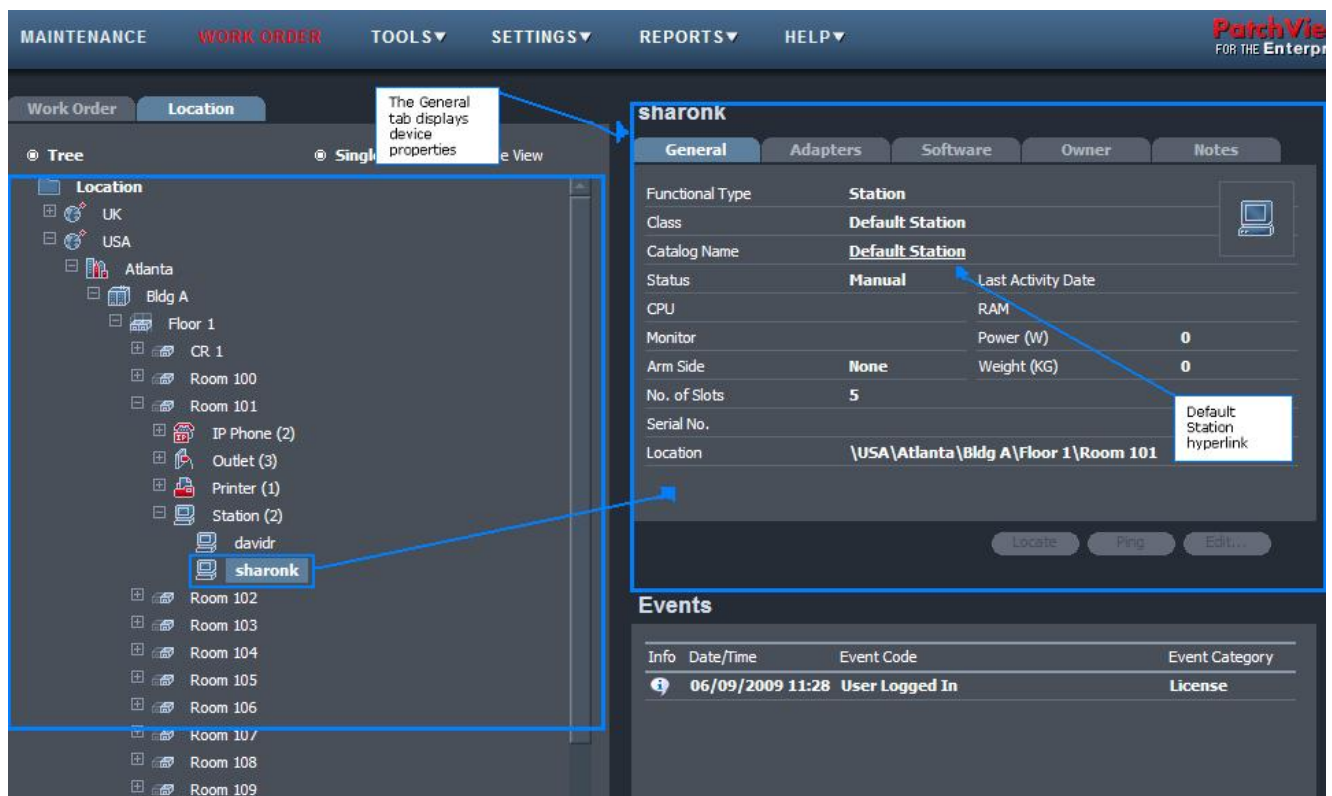


Figure 222 Single View Screen

To view the default values of the selected device, (*default station* is used in the above example) click the [Default Station](#) in the *General* Tab screen. The relevant device catalog screen opens:

View Catalog -- Webpage Dialog

### Default Station

General   Adapters   Software   Notes

Functional Type	Station			
Class	Default Station			
Description				
Type	Stand Alone			
CPU			RAM	
Weight (KG)	0	Power (W)	0	
Arm Side	None	Monitor		
No. of Slots	5	Size (U)	2.5	
Vendor Name				
Vendor Part No.				
Image Name	<u>Default Station</u>			

Close

*Figure 223 Default Station*



## Double View

### > To move around the tree using the Split View Screen:

1. Click the plus sign icon (+) to expand the next level.
2. Click the minus sign icon (-) to collapse the lower levels.

The **Double View** option allows you to view the Location tree on both sides of the screen. The drag-and-drop feature is particularly useful when the tree is elongated.

Select the item/items from the Location tree on the left-hand side of the screen and drag to a new location in the location tree on the right-hand side of the screen. The operation can also be reversed, i.e. right to left and left to right.

The following screen displays the *Double View* option screen:

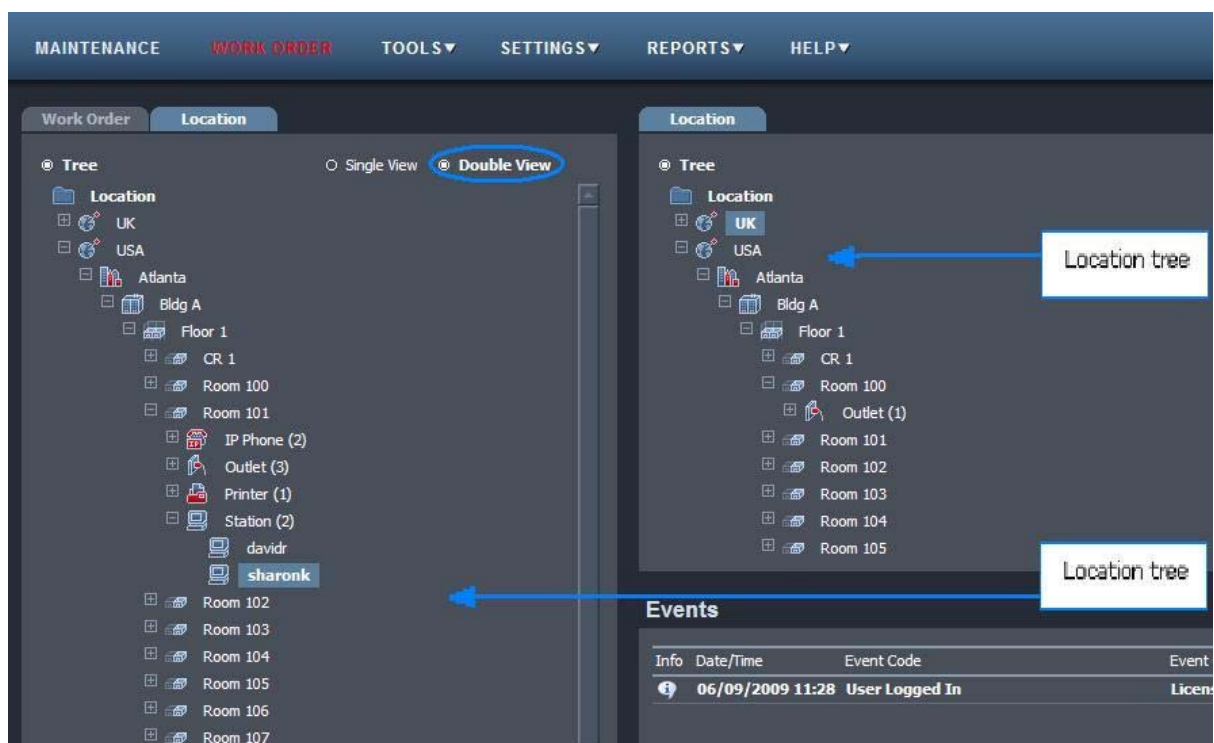


Figure 224 Split View Screen

## Working with the Provisioning Tool

### Defining Services

#### > To define a service:

1. Select *Settings* > **System Tables**.

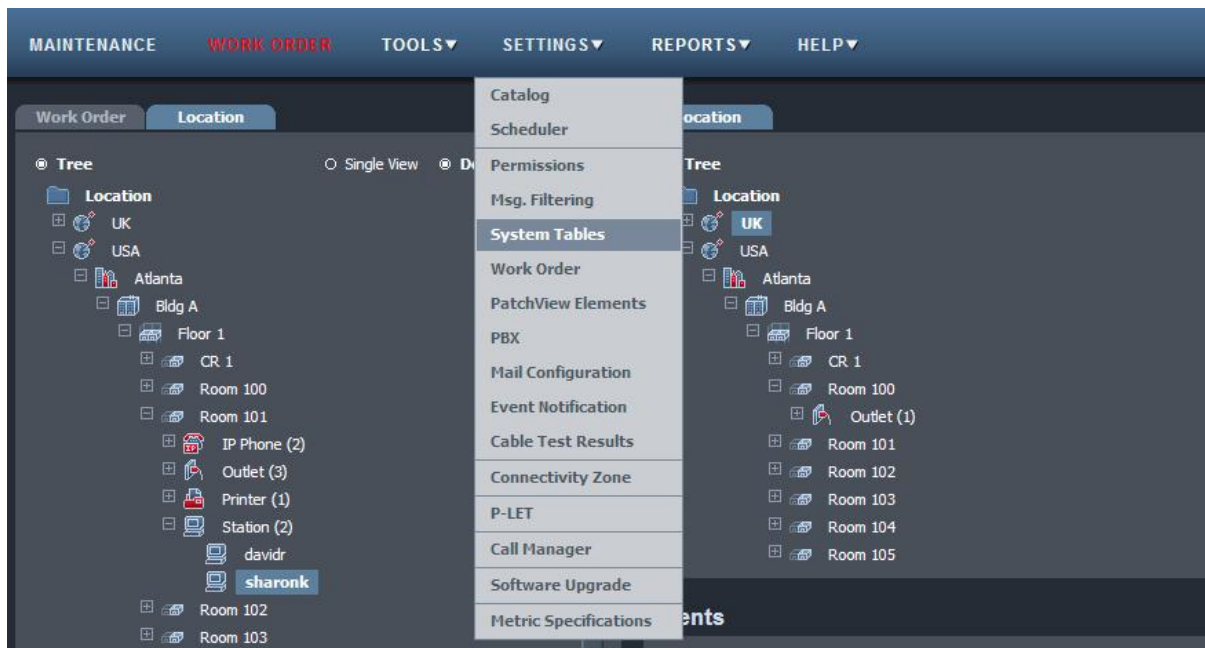


Figure 225 System Tables Screen

The *System Tables* screen is displayed. Click the *Service* tab:

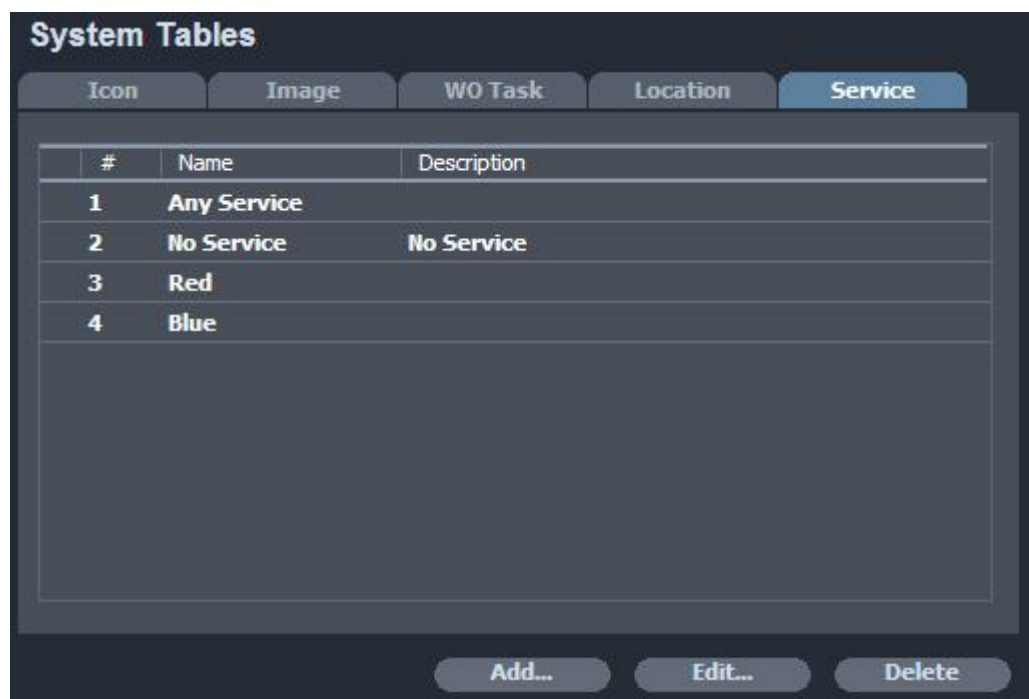


Figure 226 Adding a Service Screen

- Click **Add**. The *Add Service* screen is displayed:

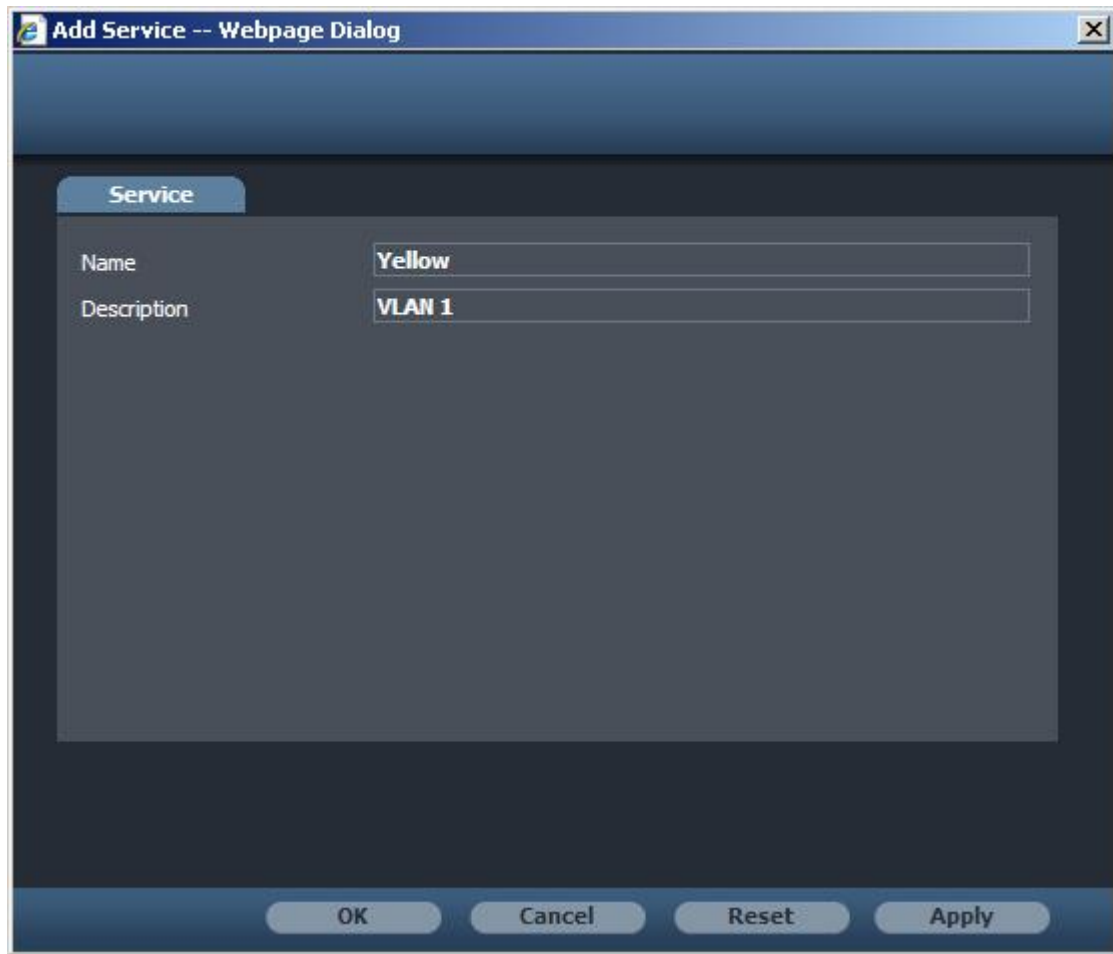


Figure 227 Add Service Screen

3. Type a name in the *Name* field that defines the Service type and a description in the *Description* field to describe the Service type.
4. Click **Apply**.
5. Click **OK** to save the changes and close the dialog box. The new service is added to the list under the Service tab.

**Note:**

*The Any Service and the No Service are out-of-the-box services and can not be modified.*

## Defining Service for Catalog Items

The Catalog items for which a Service can be defined are:

- Cable
- Terminal equipment
- Network equipment
- Connecting hardware

For example - If you want to define a service for a default station after it has been defined in the system, do the following:

1. Select *Settings* > **Catalog**

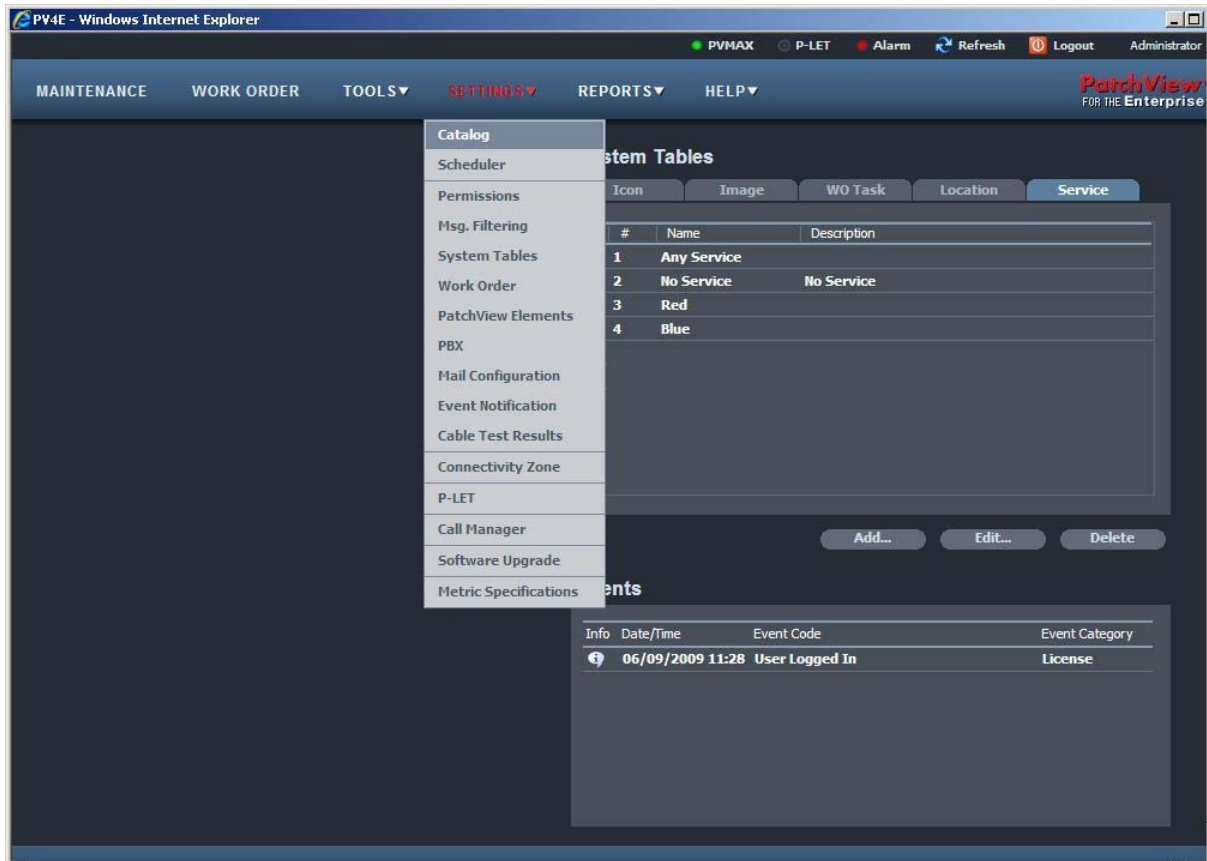


Figure 228 - Add or Edit Catalog Items Screen

2. Select **terminal equipment** > **station** > **default station** > default station.
3. The *Add/Edit Catalog* screen is displayed.
4. Click the **Adapters** tab.



Figure 229 Add/Edit Catalog items Screen

5. Via the *Adapters* tab, select any of the previously defined Service from the drop-down list box.
6. Repeat step 5 for any of the network adapters whose service needs to be changed
7. Click **Apply**.
8. Click **OK** to save the changes and close the dialog box.

**Note:**

*To save the catalog item as a new entry in the catalog items list, click **Save As New** before clicking **OK** in step 4.*

## Defining Service for Inventory Items

The Inventory items for which a Service can be defined are instances of any of the catalog item mentioned above that are located in the Location tree.

To add or edit service for Inventory items, (an outlet has been used in this example):

1. Via the Maintenance menu, right-click an outlet from the Location tree and click **Add**. The *Add/Edit Inventory Outlet* screen is displayed:

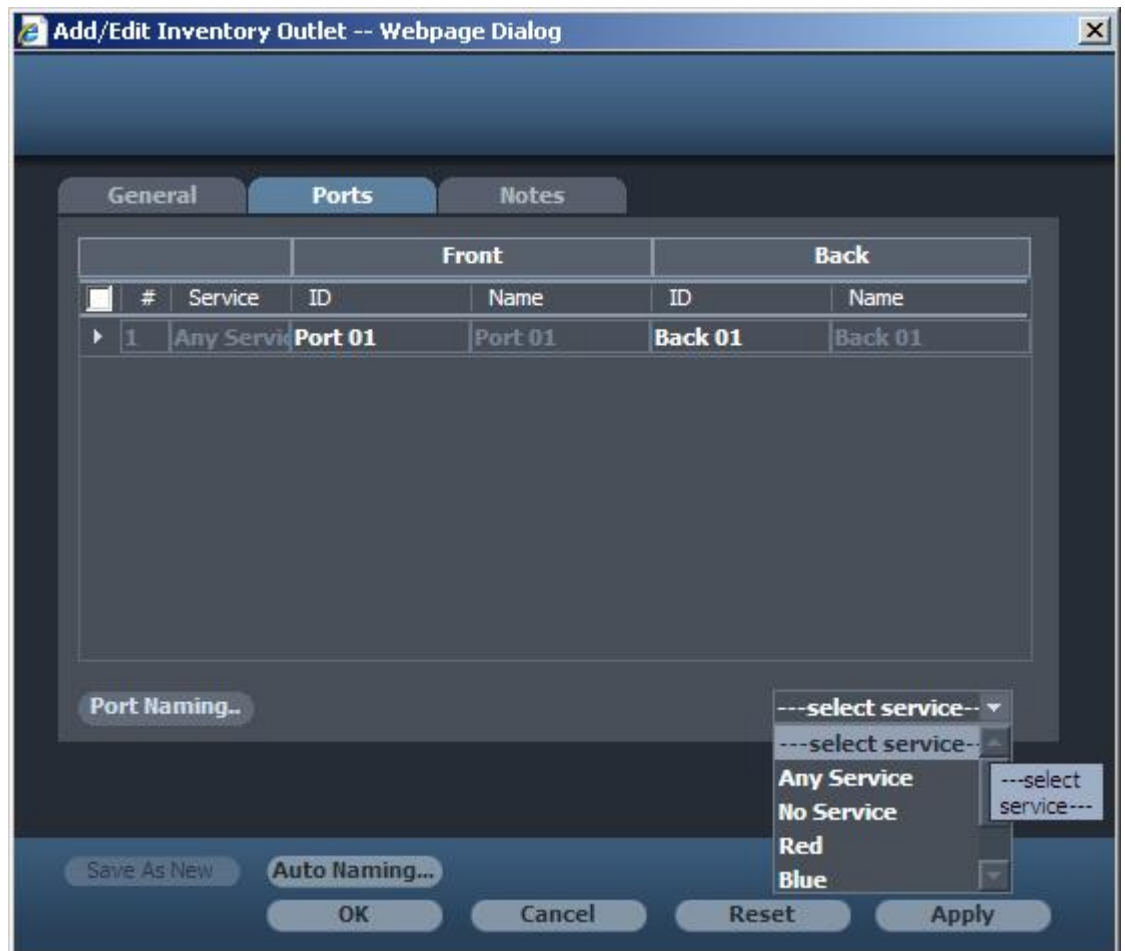


Figure 230- Add/Edit Inventory items Screen

2. Via the *Ports* tab, select the Service from the drop-down list box.
3. Repeat step 2 for any of the network adapter whose service needs to be changed.
4. Click **Apply**.
5. Click **OK** to save and close the dialog box.

To save the inventory item as a new entry in the Location tree, click **Save As New** before clicking **OK** in step 4. Click **Duplicate** to copy the entry to the Location tree with its exact attributes.


If you want to apply the same service for the entire network adapter then rather than allocating one by one you can tick the checkbox at the left top most corner of the grid and do the allocation only once.


## Connectivity Zone

The *Connectivity zones* window shows the different connectivity zones which have already been defined in addition to allowing to user editing/adding new ones.

Each panel can be defined as part of one or many groups.

#	Name	Location
1	AF1PP1	\USA\Atlanta\Bldg A\Floor 1\CR 1\Rac
2	AF1PP2	\USA\Atlanta\Bldg A\Floor 1\CR 1\Rac

The full panel icon  shows that all the ports in the specific panel are marked as part of the connectivity zone.

The partial panel icon  shows that one or more ports are not part of the connectivity zone. The panel will still display half white and half blue even if there is one port missing.

You can select one or more panels to be connected within several racks/cabinets so they act as a group.

Ports from multiple panels can be connected, as long as they are within the same connectivity zone. You cannot, however, connect panels from different connectivity zones.

## Adding a New Connectivity Zone

Select *Settings* > **Connectivity Zone** to display a list of existing connectivity zones:

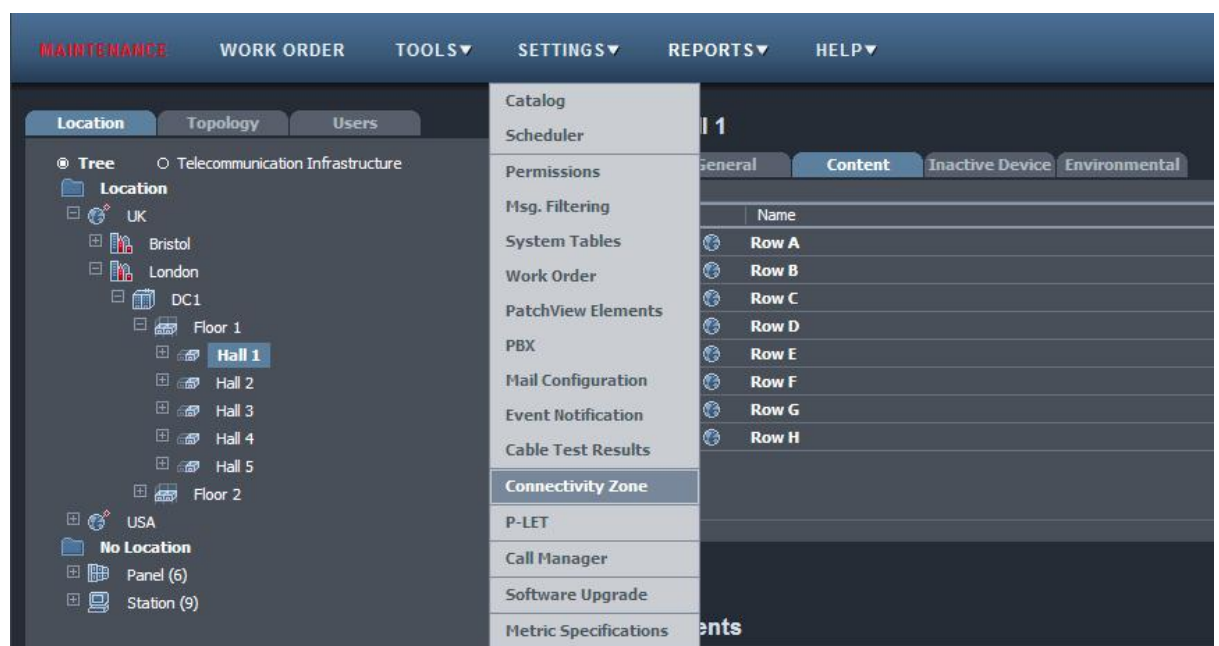


Figure 231 - Select Connectivity Zone from the Settings menu Screen

> **To add a new connectivity zone:**

1. Click **New** at the bottom of the Groups tab to add a new group. The *Add Group* screen is displayed:

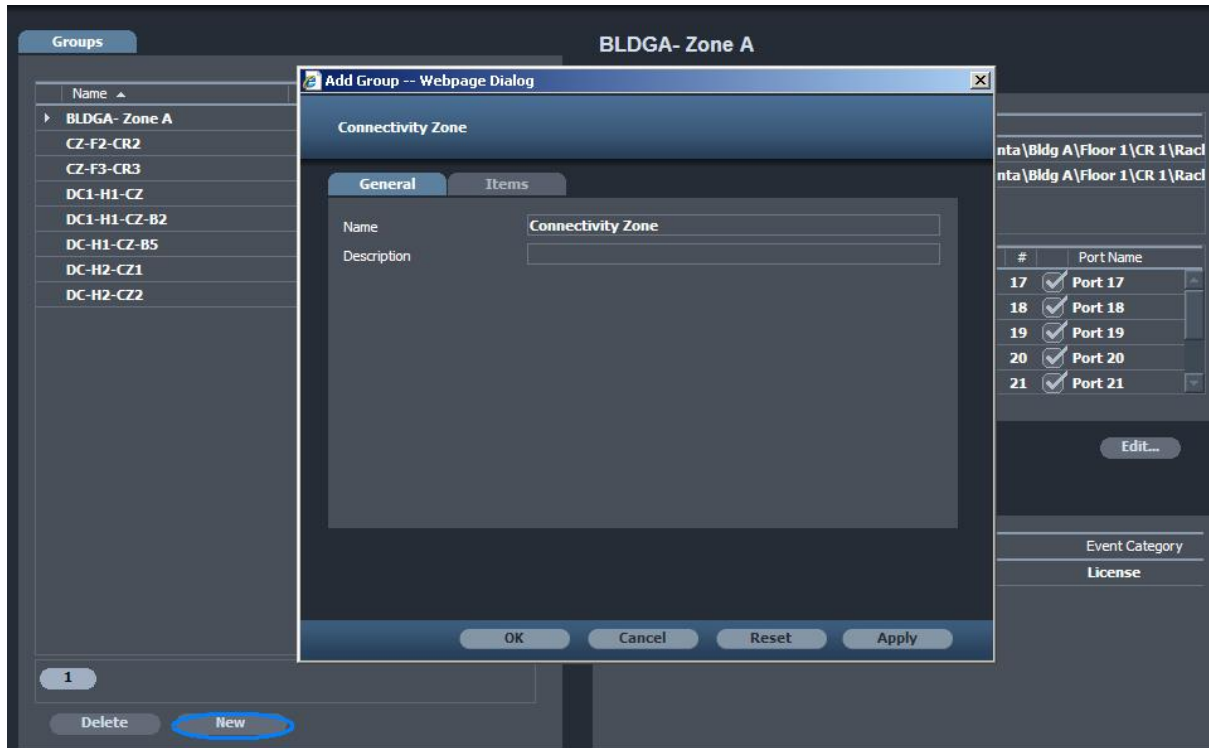
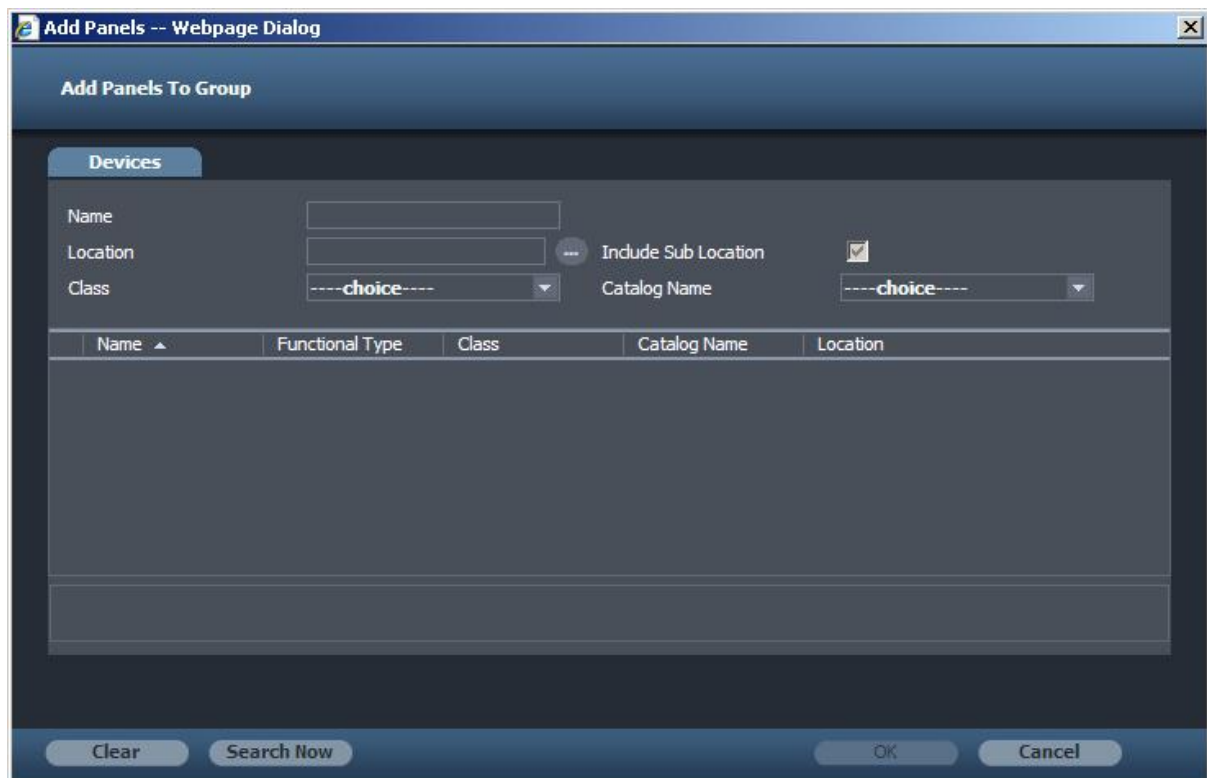


Figure 232 - Add Group Screen

2. Type a name in the *Name* field and a description in the *Description* field to describe the new group.
3. Click **Apply**. Click the **Items** tab.
4. Click **Add**. The *Add Panels to Group* dialog box opens:





5. Enter details of your search in the *Name*, *Location* and *Class* fields and click **Search Now**. The following Add Panels To Group screen opens:

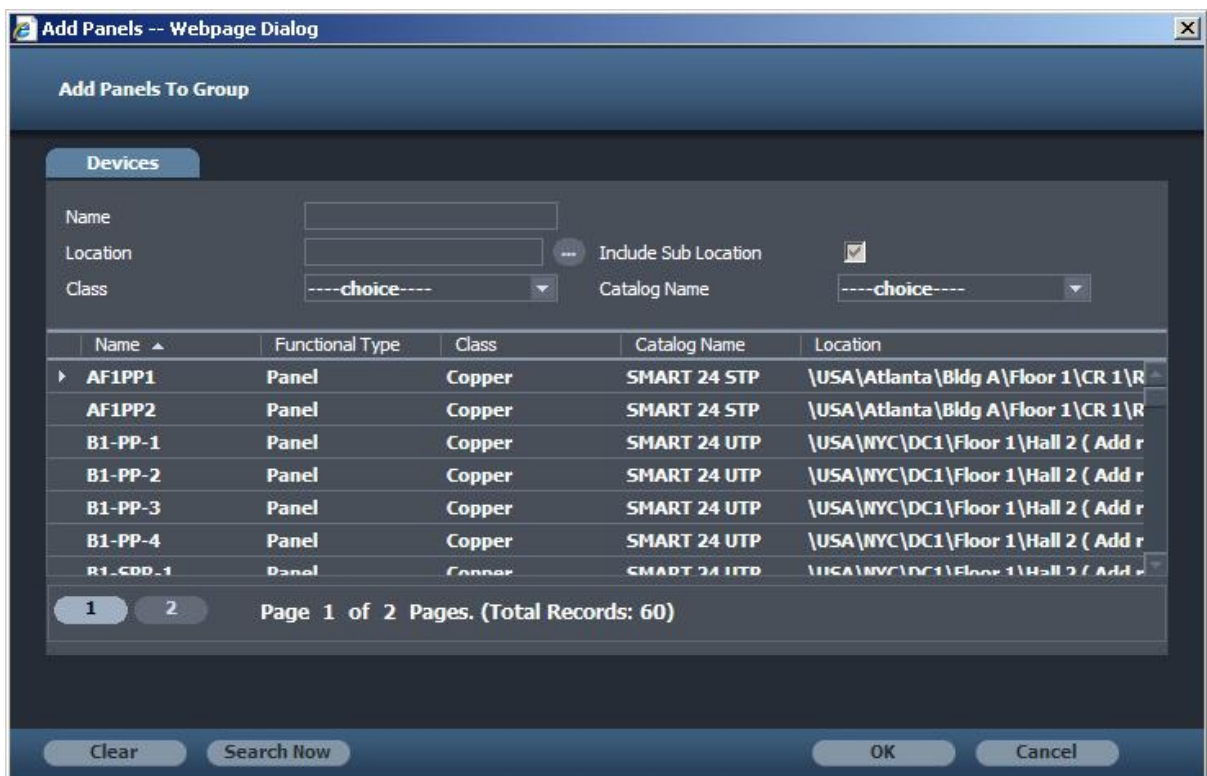


Figure 233 - Add Panels Screen

6. From the list, select the panels that you want to include in the group and Click **OK**.

7. To select several items that are not in succession, hold down the Ctrl key and select using the mouse. To select consecutive items, stand on the first item, hold down the Alt key and click the last in the selection. Click **OK**. The following screen opens:

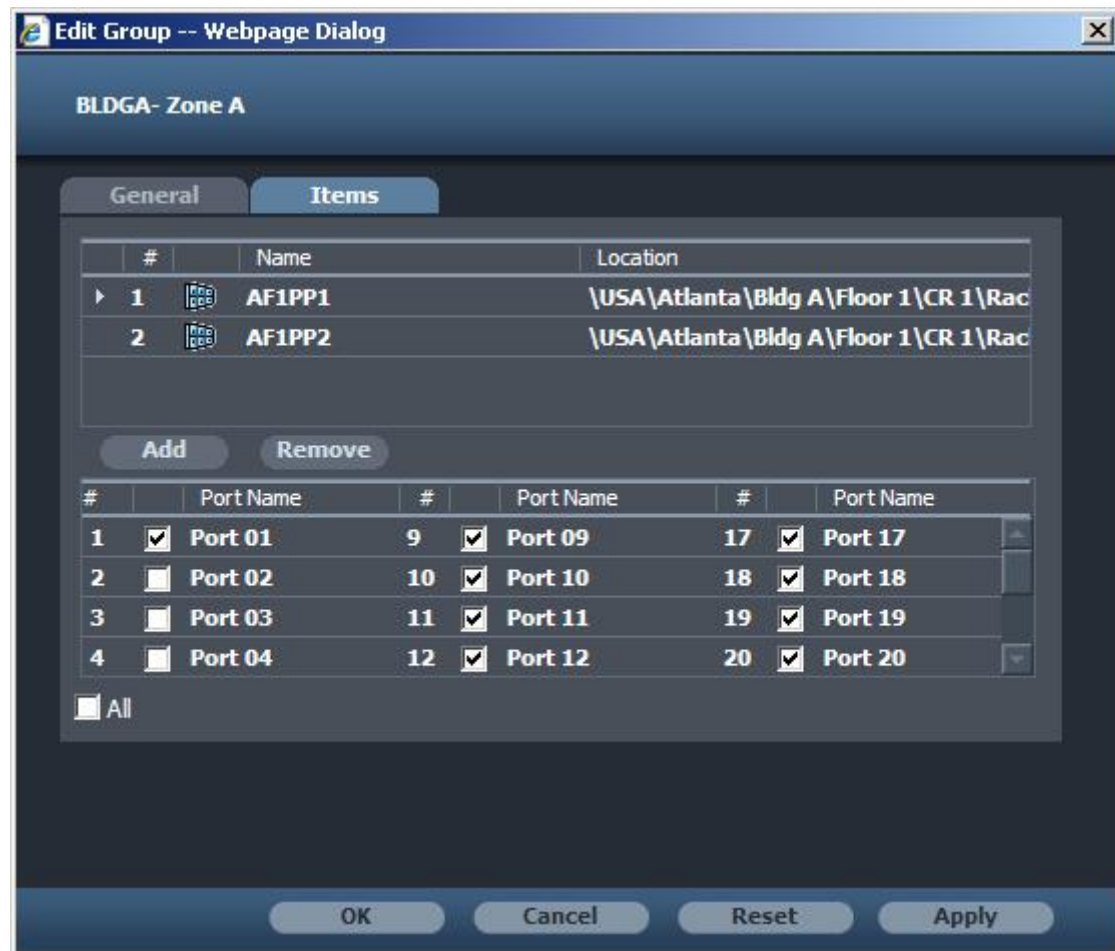
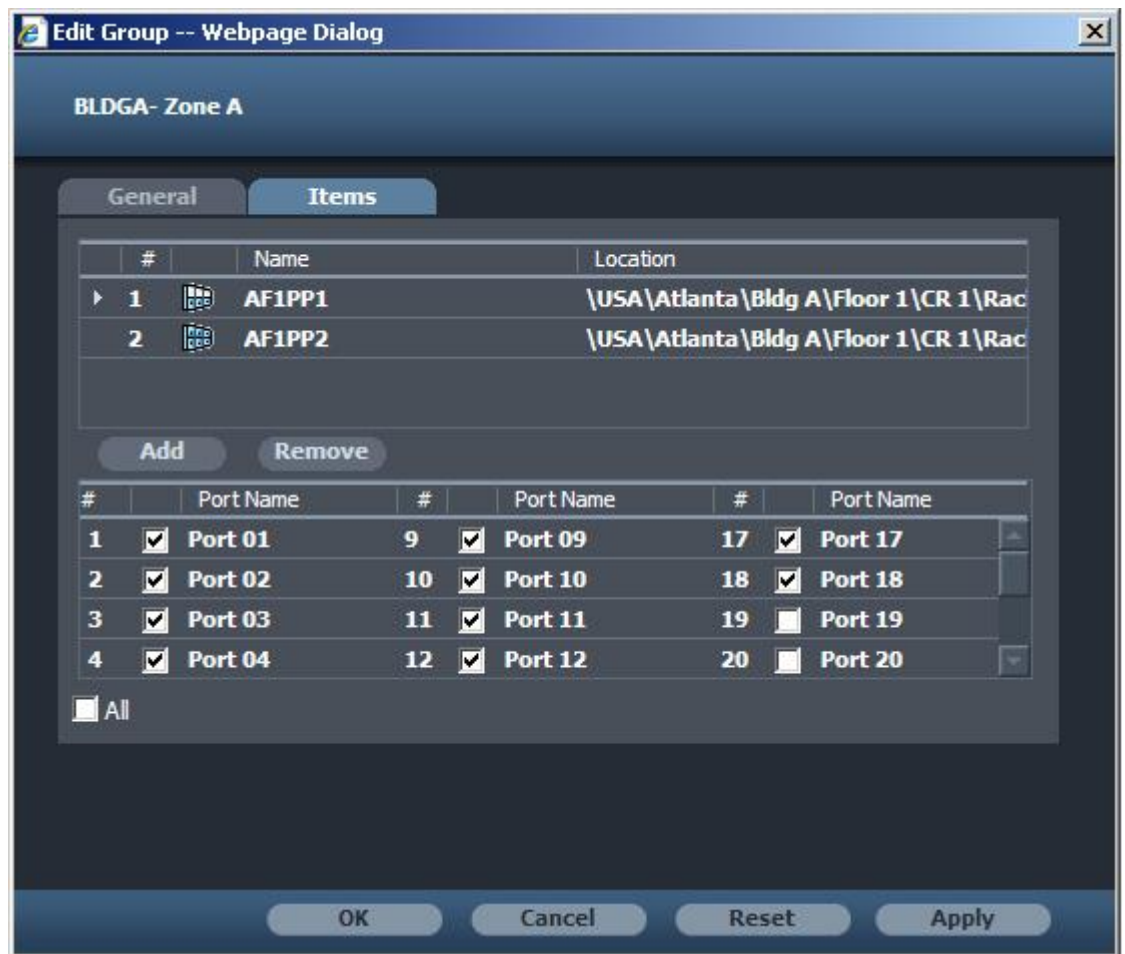


Figure 234 - Edit Group window

8. Select the panel from the top half of the screen. The lower half shows which ports are included in that connectivity zone. To deselect all, click the **All** check box ☒ All. If you want to deselect a few, click the check mark box next to the port.



9. Click **Apply to save or OK** to save and close the screen. Panel number (3) p-sc-672-01 now shows that not all ports are part of that group.

## Deleting a Group

### > To delete a group:

1. Select the group you want to delete from the list in the *Groups* tab.
2. Click **Delete**. A dialog box is displayed:

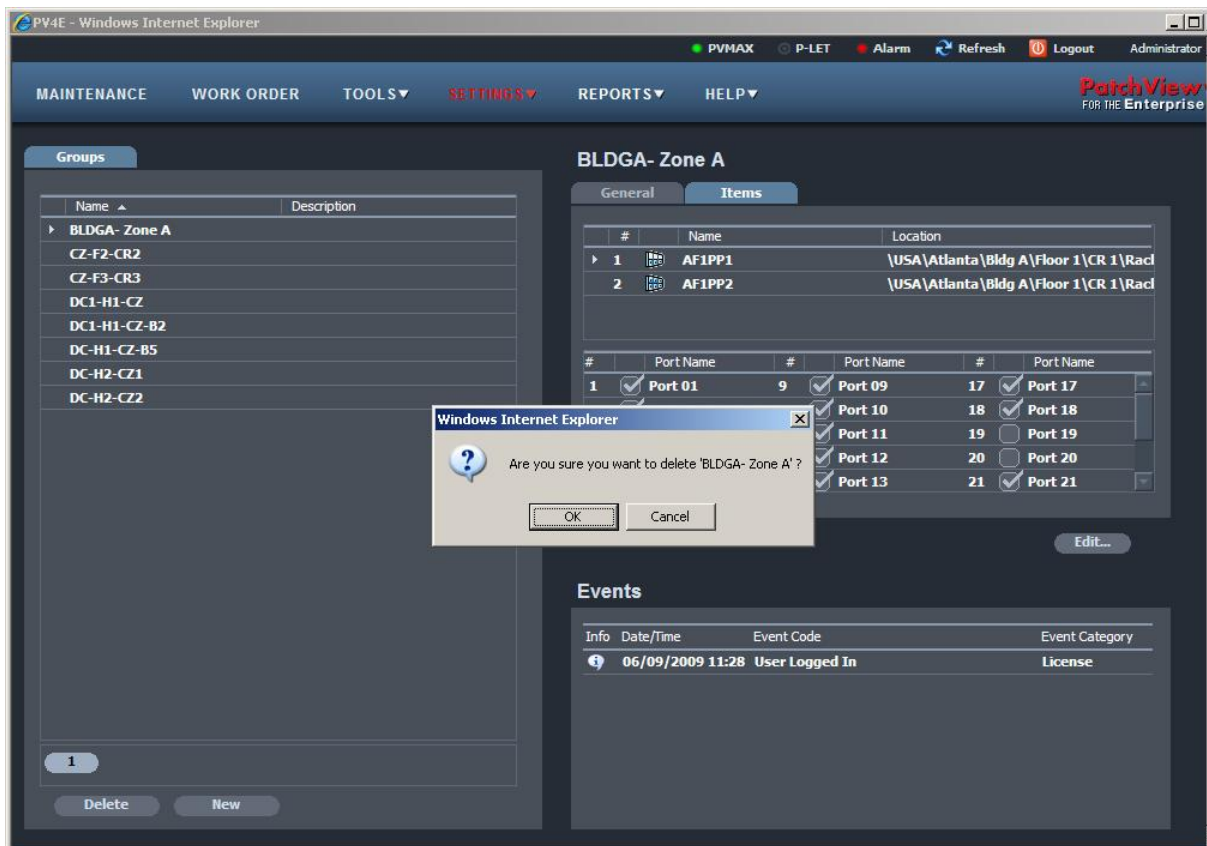


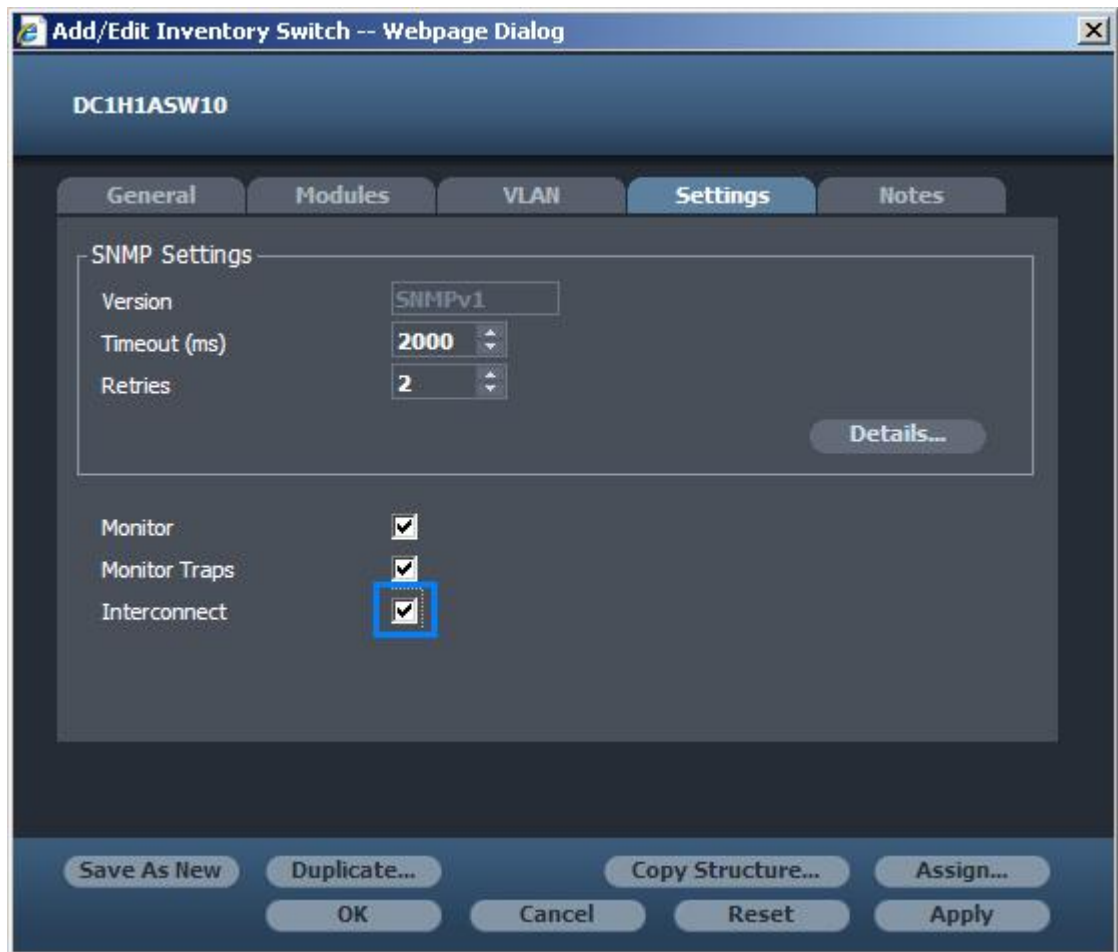
Figure 235 - Confirm Delete Action Screen

3. Click **OK** to confirm the action or **Cancel** to abort the action. The group and all associated data are deleted from the list in the Groups tab.

## Running Provisioning Request in an Interconnect Environment

The automated provisioning supports provisioning requests for interconnect environment. In order to support it the connectivity zone needs to contain panels and switch module. The following steps are required in order to set connectivity zones between switch modules and panels

1. Under *Maintenance* tab select the switch which is connected in interconnect configuration
2. Click **Edit**.
3. Navigate to the *Settings* tab and tick the *Interconnect* checkbox



4. From this point onward the switch's modules can be added to connectivity zones like regular panels.

## Setting the Offline Tasks

As mentioned beforehand, you can modify the offline tasks which are being generated by the system for different provisioning request types and different terminal equipment type. Enabling you to do these modifications allows you to create different profile for different request. For example, moving a printer requires a different set of offline tasks than moving a workstation.

This section elaborates about changing the offline tasks. You must have a direct access to PV4E server machine in order to make the modifications.

### Offline Tasks File Structure

The file has the following structure:

1. The *ID* column is a serial, sequential number. Applicable values are 25 and onwards.
2. The *OperationID* column specifies the request type to which the specific row refers. The following table details the different operation ID's (These are the only applicable values for this column):

Operation ID	Refers to ...
1	Move station request

Operation ID	Refers to ...
2	Move IP phone request
3	Move printer request
4	Obsolete
5	Add station request
6	Add IP phone request
7	Add printer request
8	Obsolete
9	Remove station request
10	Remove IP phone request
11	Remove printer request
12	Obsolete
13	Change service to station request
14	Change service to IP phone request
15	Change service to printer request
16	Obsolete
17	Swap station request
18	Swap IP phone request
19	Swap printer request
20	Obsolete
21	Swap station request (As part of workspace swap)
22	Swap IP phone request (As part of workspace swap)
23	Swap printer request (As part of workspace swap)
24	Obsolete

- The *Order* column lets you set the order between multiple offline tasks which refers to the same provisioning operation ID. Applicable values are 2 onwards. You can re-order tasks by changing their values in this column.
- The *IsTaskReferToLink* specifies to whether this task refers to a specific link of the device (e.g. Wrap a label around the patch cord) or to the device as a whole (e.g. Place the workstation's monitor 10 inches from the left end of the desk). Applicable values are '1' (The task refers to specific link of the device) or '0' (The task refers to the device).
- The *Description* column allows you to specify the exact content of the task. This is a free text column where you can specify every required task. However, the provisioning engine supports some place holders for this column which are replaced automatically during the execution of the request. Place holders supported by the system are:

DEVICE\_NAME

FROM\_LOCATION

TO\_LOCATION

PORT\_NAME

CURRENT\_SERVICE

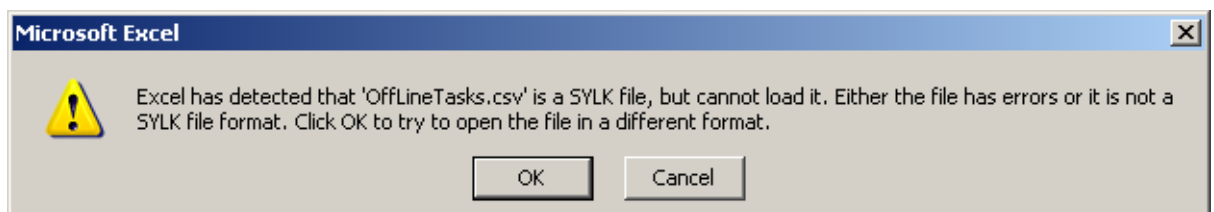
NEW\_SERVICE

SECOND\_DEV\_NAME (Relevant for swap requests only)

6. The *IsActivataed* column tells whether the task is activated ('1') or not (0'). The column gives you the flexibility to eliminate a task temporarily from the process without deleting it from the file.
7. The *TaskType* should always have the value '7'.

## Editing the Offline Tasks File

1. Locate the OffLineTasks.csv file under the following path:
2. [PV4E root directory]\RiT Technologies\PatchView for the Enterprise\Server\Bin
5. Double-click the file to open it for editing. The following message box appears:

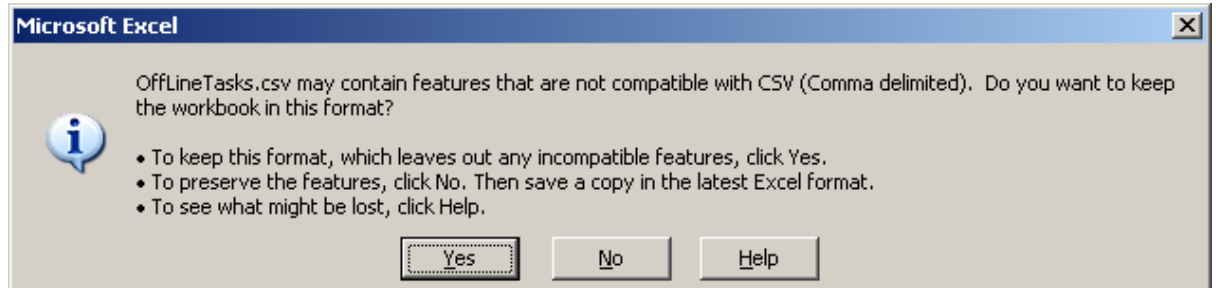


6. Click **OK**. The file opens
7. Each row in the file represents a single offline tasks for specific request type and device type. For example, the first row is an offline task which tells you to physically move a station from location **A** to location **B**. Therefore, the tasks refers to *Move* request of device of type *Station*
8. For every new task add an additional row and fill it with information according tom the file structure defined above. For example, if you would like to add a new offline task for a printer. The task tells the technician to move the spare tuners with the printer itself. Take the following steps to do define the task:
  - Set the 'ID' value to '25' (The next available ID in the file).
  - Set the operation Id to '3' (Refers to move request for printer).
  - Set the order to be '2' (The second offline task which refers to the printer)
  - Set the *IsTaskReferToLink* to 0 (the task refers to the printer itself and not to its links)
  - Type in the description of the task (e.g. 'Move the spare tuners box of *DEVICE\_NAME* to *TO\_LOCATION*. The automated provisioning module will automatically replace then place holders with the actual printer name and target location).
  - Set the values in the *IsAvctivated* column to '1' – active task.

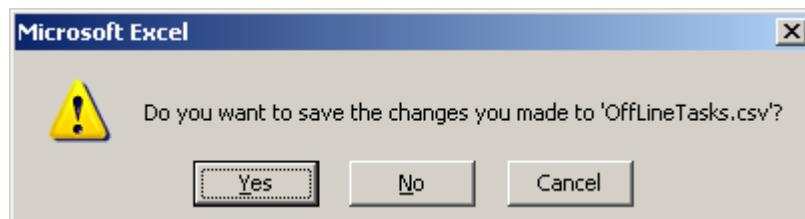


- Set the *Task Type* column to '7'.

9. After you have entered in the new offline task click **OK**, the following message box appears:



10. Click **Yes**
11. The following message box appears:



12. Click **No**.
13. In order for the changes to take affect you need to shut down the dllhost.exe process. Use the operating system's task bar to shut down the process. It will restart itself automatically the next time that a provisioning request is launched.

## Running Provisioning Request

### Move Request

The Move feature allows you to automatically generate a Work Order that contains the specific tasks needed for moving a selected device(s) or workspace from one location to another.

To move a selected device or workspace from one location to another:

1. Right-click the device (i.e. a single device or multiple devices) and click **Move** from the context menu:



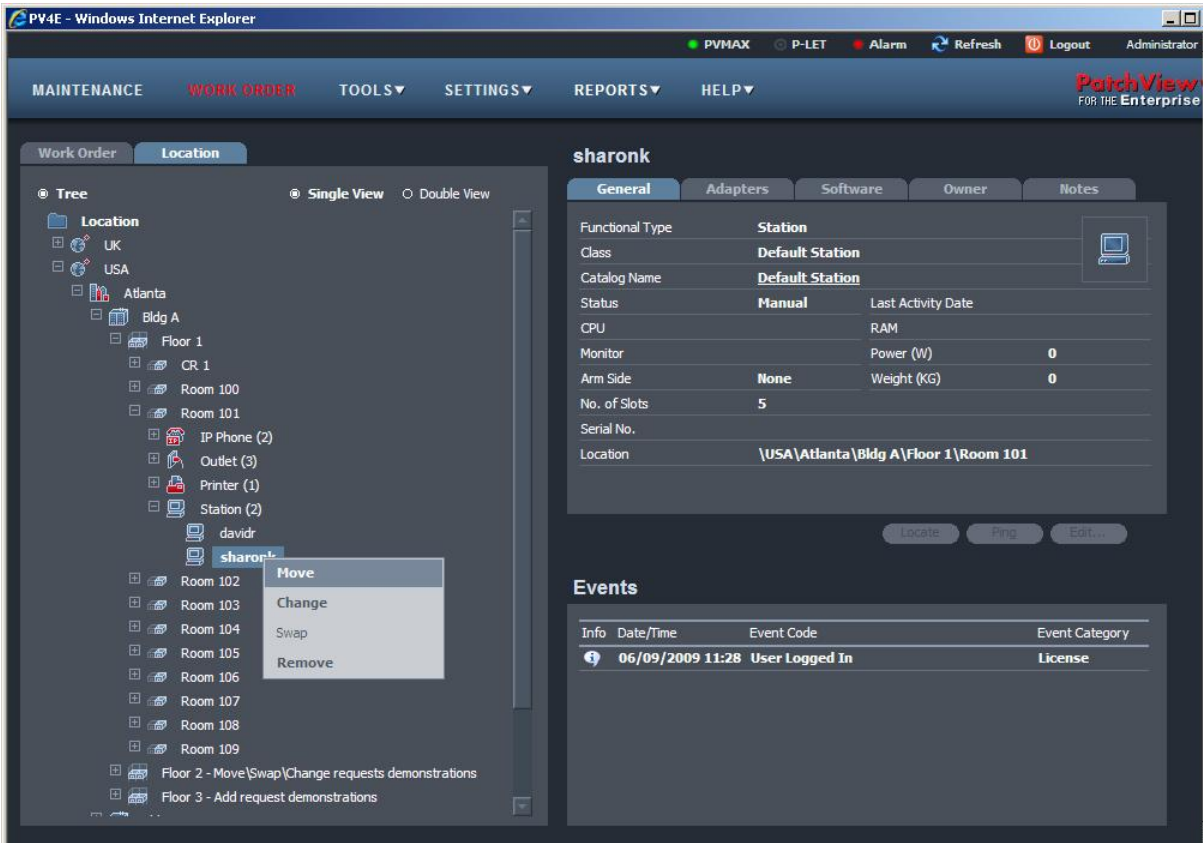


Figure 236 - PV4E Main Screen

You can also drag and drop the device to its new location. The **Single View** window is used as an example.

When the item/items are moved to the new location in the Location tree, the following *Move Equipment* screen opens.

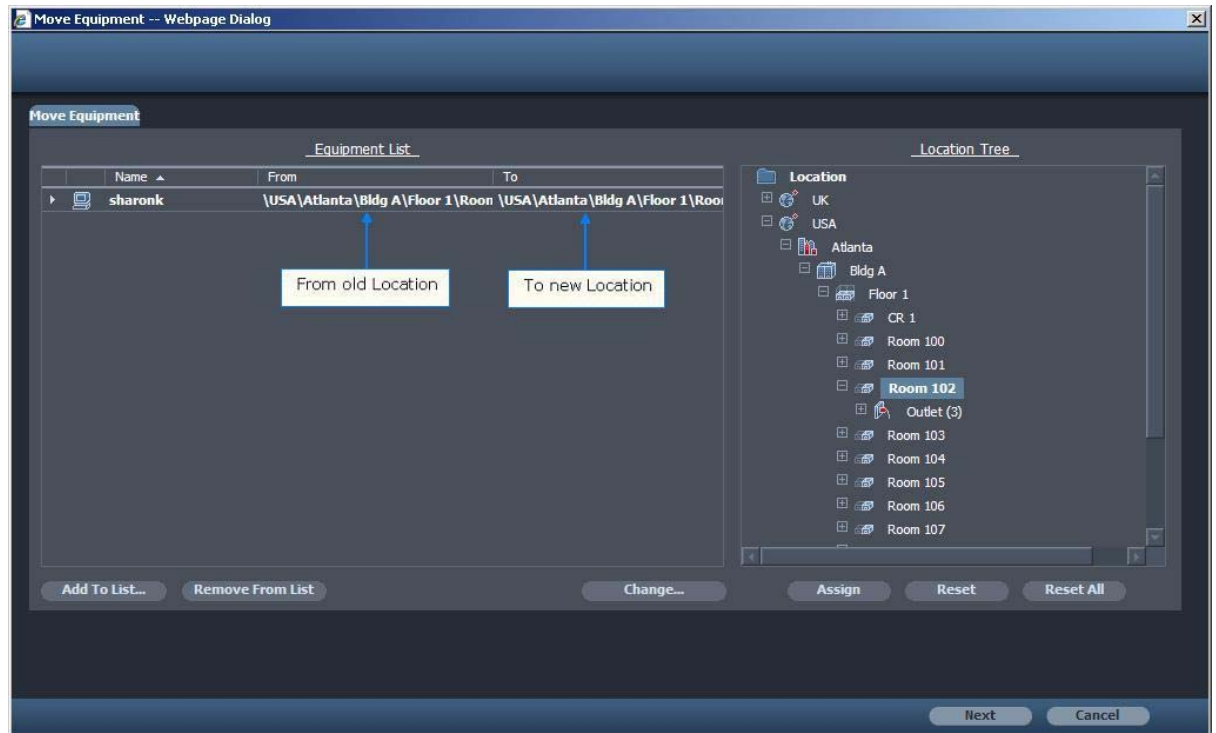


Figure 237 - Move Equipment Screen

The original and new location is displayed.

The following table lists each button in the Move Equipment screen and its function:

Button Name	Action
<b>Add To List...</b>	The Add To List adds additional items to be moved
<b>Remove From List</b>	The Remove button removes the selection from the screen, however it does not remove it from the inventory, but from the Move request.
<b>Change Service...</b>	The Change Service button allows changing the selected service and also the VLAN to another VLAN\service, respectively.
<b>Assign</b>	The Assign button allows you to assign another location from the location tree on the right-hand side. In case of a location which contains outlets you can specify specific outlet to which the moved device is to be connected.
<b>Reset</b>	The Reset button changes the new location back to the original location.
<b>Reset All</b>	The Reset All button changes the <b>entire</b> selection back to the original location.

2. Click **Next** on the *Move Equipment* screen after making any required changes.

A *Provisioning in progress* message appears at the top right corner of the screen to indicate that the provisioning module is running its calculations.

Once the calculations are done the following screen opens:

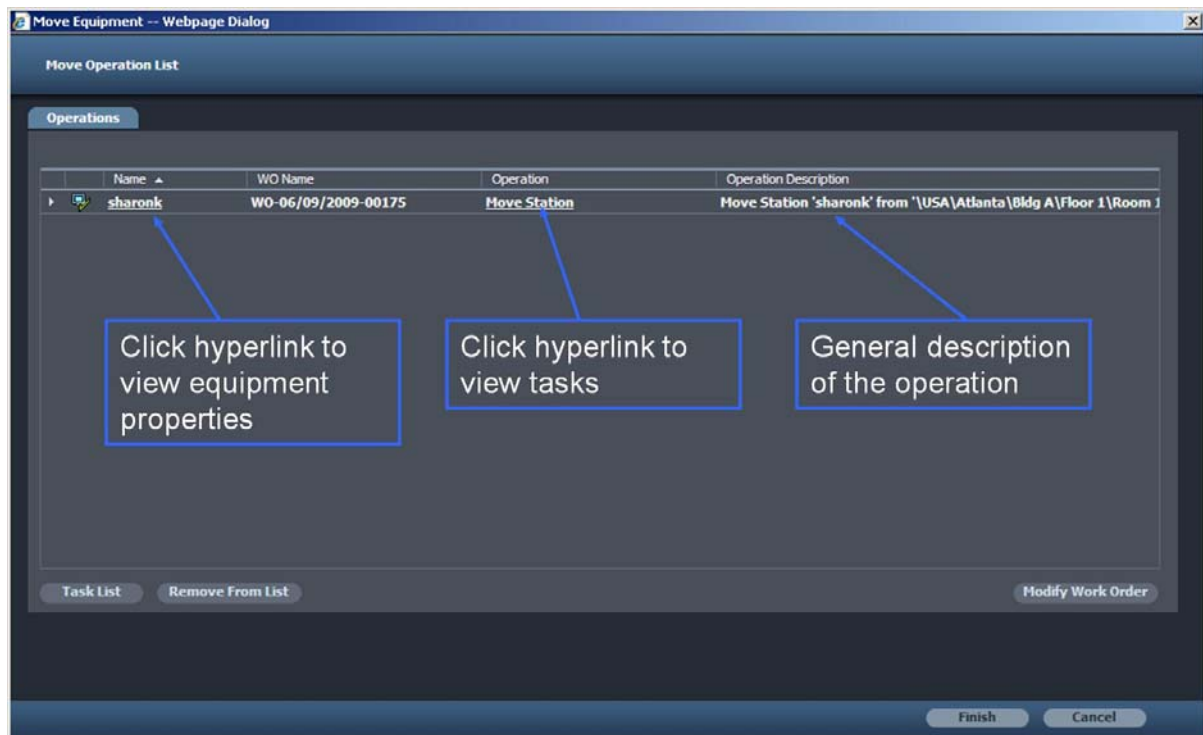


Figure 238 - Operations Screen

In the Operations screen window, you have several different options available, such as:

- Modify the Work Order for each operation
- View device details
- View a list of tasks for each operation
- Modify, add or remove tasks for each operation

To modify a Work Order in the *Operations* screen, click **Modify Work Order**, the following screen is displayed:

Modify Work Order -- Webpage Dialog

Modify Work Order

Work Order

Name ----choice----

Status ----choice----

Name ▲	Priority	Status	Target Date
--------	----------	--------	-------------

Clear Search Now OK Cancel

*Figure 239 - Modify Work Order Screen*

Click **Search Now** to filter and display existing Work Orders. You can narrow the search by specifying a Work Order name as well as a specific Work Order status.

To view the equipment properties for the selected user, click the Item name [hyperlink](#) beneath the Name column. The following *View Inventory* screen opens at the General tab:

**sharonk**

**General**   Adapters   Software   Owner   Notes

Functional Type	<b>Station</b>		
Class	<b>Default Station</b>		
Catalog Name	<b>Default Station</b>		
Status	<b>Manual</b>	Last Activity Date	
CPU	RAM		
Monitor		Power (W)	<b>0</b>
Arm Side	<b>None</b>	Weight (KG)	<b>0</b>
No. of Slots	<b>5</b>		
Serial No.			
Location	<b>\USA\Atlanta\Bldg A\Floor 1\Room 101</b>		

Ping   Close

Figure 240 - View Inventory Screen

To view the tasks, click the [Operation](#) hyperlink.

The following *Recommended Link Information* screen displays the recommended link chosen by the system to for this operation. Each network adapter has its own recommended link. The only exception is when two devices are daisy chained (like workstation and IP phone) and then they will have the same recommended link. The recommended link by the system is the one with the highest grade calculated by the grading links covered above. To view alternative links, click the **Alternative Link** button.

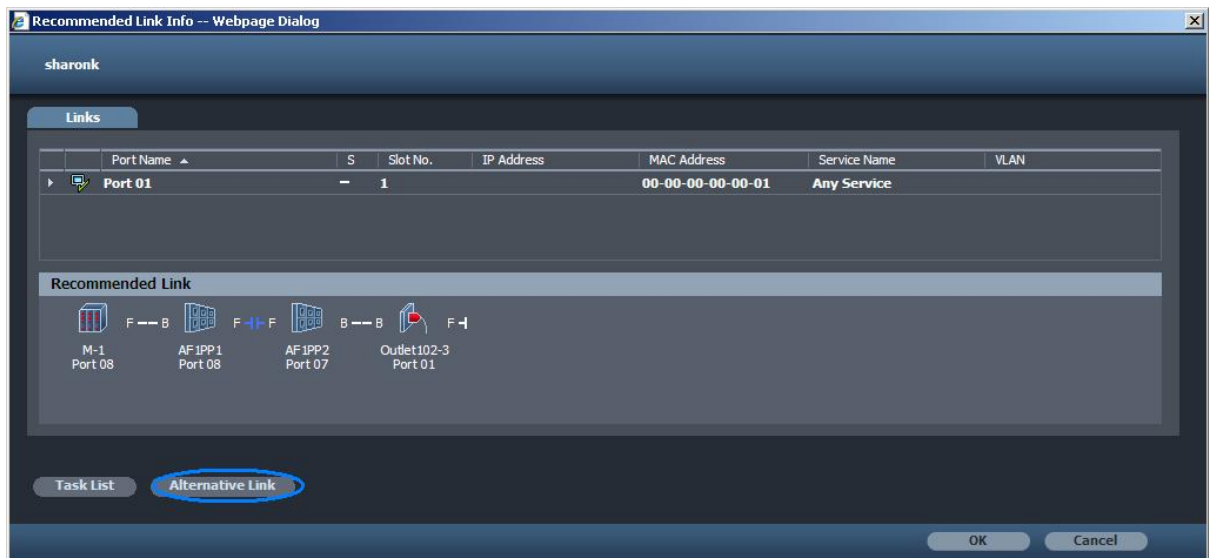


Figure 241 - Recommended Link Screen

The following *Alternative Link* screen opens and displays additional links for the selected move. These links have a lower grade than the link which is been presented as the candidate link. To select an alternative link, click the parallel bar next to the preferred link.

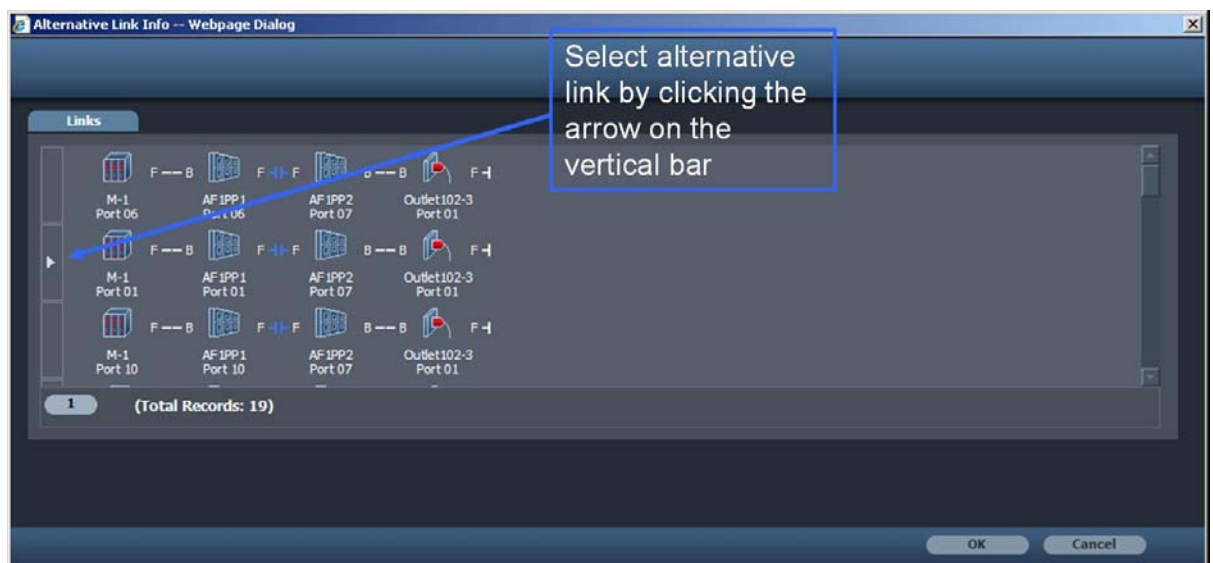


Figure 242 - Alternative Link Screen

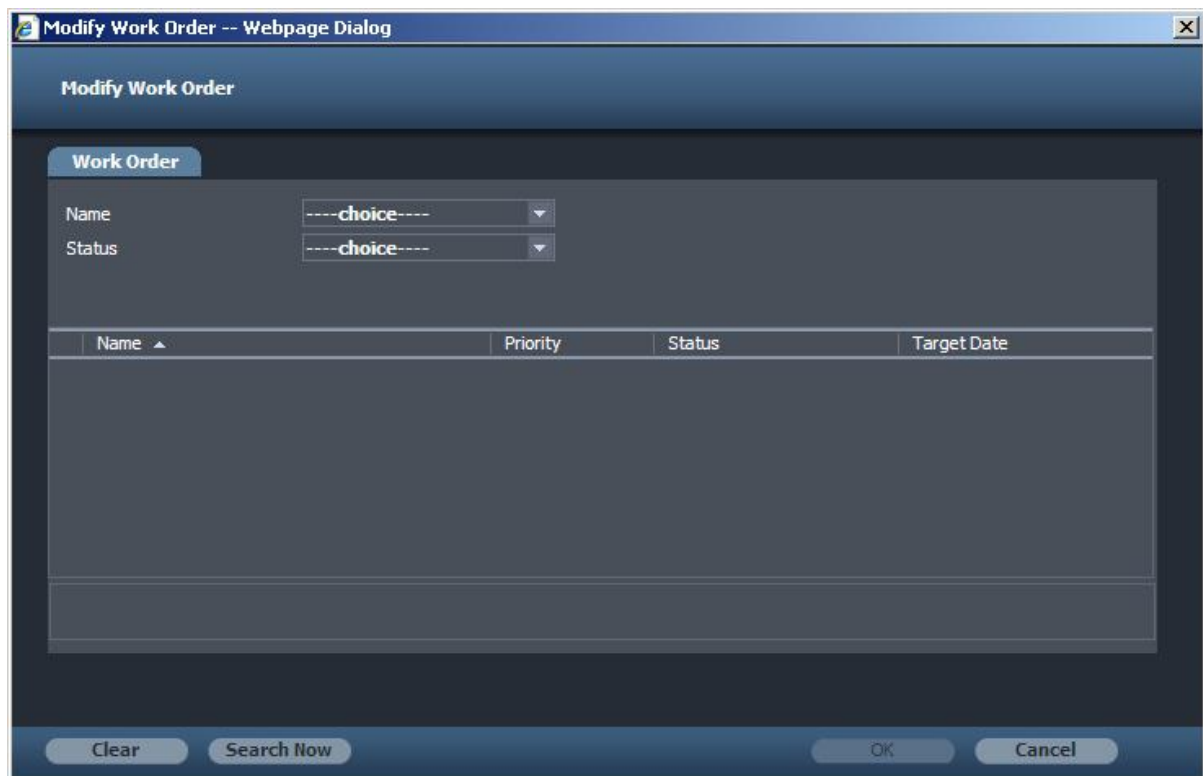
Select the new alternative link and click **OK**. The previous *Recommended Link* screen is displayed with the new alternative link. The system automatically adjusts the tasks to the newly selected link.

Click **OK** again to return to the summary screen of the Provisioning operation.

## Modifying a Work Order

The output of a provisioning request is a work order. You can either let the system generate its own work order or alternatively, you can use an existing one. Take the following steps to change the work order.

1. Click **Modify Work Order** from the *Results* screen to modify an operation or task of the selected Work Order. The *Modify Work Order* dialog box is displayed:



Name	Priority	Status	Target Date
------	----------	--------	-------------

*Figure 243 - Modify Work Order Screen*

2. Select the Work Order from the Name drop-down list box, or click **Search Now**. The Work Order list is displayed:

**Modify Work Order -- Webpage Dialog**

**Modify Work Order**

**Work Order**

Name: ---choice---

Status: ---choice---

Name	Priority	Status	Target Date
WO-05/08/2009-00164	1	Created	05/08/2009
WO-05/08/2009-00167	1	Created	05/08/2009
WO-05/08/2009-00169	1	Created	05/08/2009
WO-12/08/2009-00170	1	Created	12/08/2009
WO-12/08/2009-00171	1	Created	12/08/2009
WO-29/06/2009-00151	1	Created	29/06/2009
WO-29/06/2009-00153	2	Created	29/06/2009

1 (Total Records: 7)

Clear Search Now OK Cancel

Figure 244 - Modify Work Order (2) Screen

3. Select the Work Order you wish to modify and click **OK**. Make the desired changes and click **Finish** to view all Work Orders.

**Move Equipment -- Webpage Dialog**

**Move Operation List**

**Operations**

Name	WO Name	Operation	Operation Description
sharonk	Move	Move Station	Move Station 'sharonk' from '\\USA\\Atlanta\\Bldg A\\Floor 1\\Room 1

Task List Remove From List Modify Work Order

Finish Cancel

Figure 245 - Modify Work Order Screen



4. To complete the move operation, click **Finish**. The system stores the operations and reserves the ports

The following Work Order screen is displayed.

The screenshot shows a software interface for a Work Order. At the top, the work order ID is 'WO-12/08/2009-00170'. Below this are three tabs: 'General', 'Operations', and 'Tasks', with 'Tasks' being the active tab. A table lists four tasks, each with a number, a description, an operation, a status, and an assigned-to field. The tasks are: 1. Disconnect F2CR2-PP-OPR 1 - Move Station Created; 2. Connect F2CR2-PP-OPR, P1 1 - Move Station Created; 3. Move 'SeanK' from '\USA\ 1 - Move Station Created; 4. Resources 'F3CR3-SW1-M 1 - Move Station Created. Below the table is a search bar and a list of items, with '1' selected. At the bottom, there are dropdown menus for 'Assign To' (set to '----assign----') and 'Status' (set to '----status----'), a 'Perform' button, and a row of buttons: 'Delete', 'New...', 'Edit...', and 'Edit Work Order'.

#	Description	Operation	Status	Assigned To
1	Disconnect F2CR2-PP-OPR 1 - Move Station		Created	
2	Connect F2CR2-PP-OPR, P1 1 - Move Station		Created	
3	Move 'SeanK' from '\USA\ 1 - Move Station		Created	
4	Resources 'F3CR3-SW1-M 1 - Move Station		Created	

Figure 246 - Work Order Screen

## Add Request

The *Add* feature allows you to automatically generate a Work Order that contains the specific tasks needed for adding single or multiple devices. You can add devices to an *area* location (i.e. building, floor, room, outlet, etc.) and prepare the relevant services based on predefined policies or profiles according to its equipment type and customer request. T

### Adding Single or Multiple Items to Location

#### > To add single or multiple items to a Location:

1. From the toolbar, select the *Location* tab, Right-click on an area in the Location tree and select **Add** from the context menu.

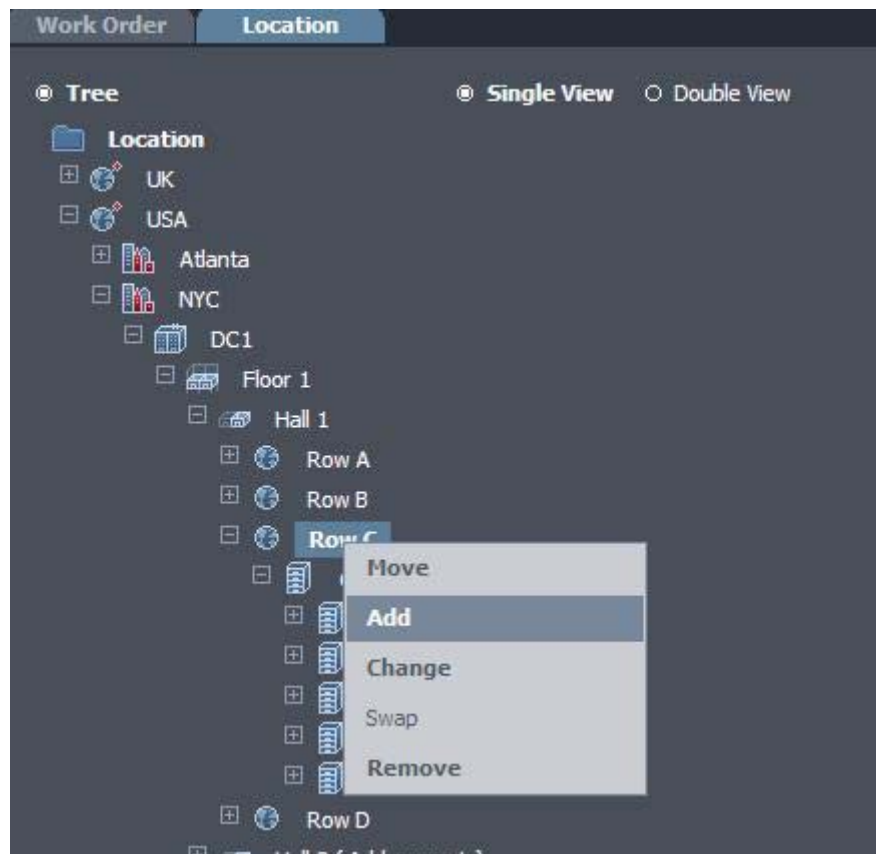


Figure 247 - Add to Location Screen

The *Add Equipment* screen is displayed:

Add To Location - "Omni provisioning Country\Floor-1\Room-1"

**Add Equipment**

Name
Device #1
Device #2


Name	Device #2
Functional Type	Station
Class	Default Station
Catalog Name	Default Station

#	Port Name	Service	VLAN
1	Port 01	Any Service	

Figure 248 - Add to Location Screen

2. *Device#1* is the default name that appears in the *Name* field and can be changed. Complete the information from the drop-down menus for each subsequent field in the order that they appear. You cannot skip a

field. The drop down lists take you through the process of defining the exact device to be provisioned

3. Override the predefined services in the Service field.
4. To override the default VLAN definitions, click the ellipsis  button. The following *VLAN List* screen opens.

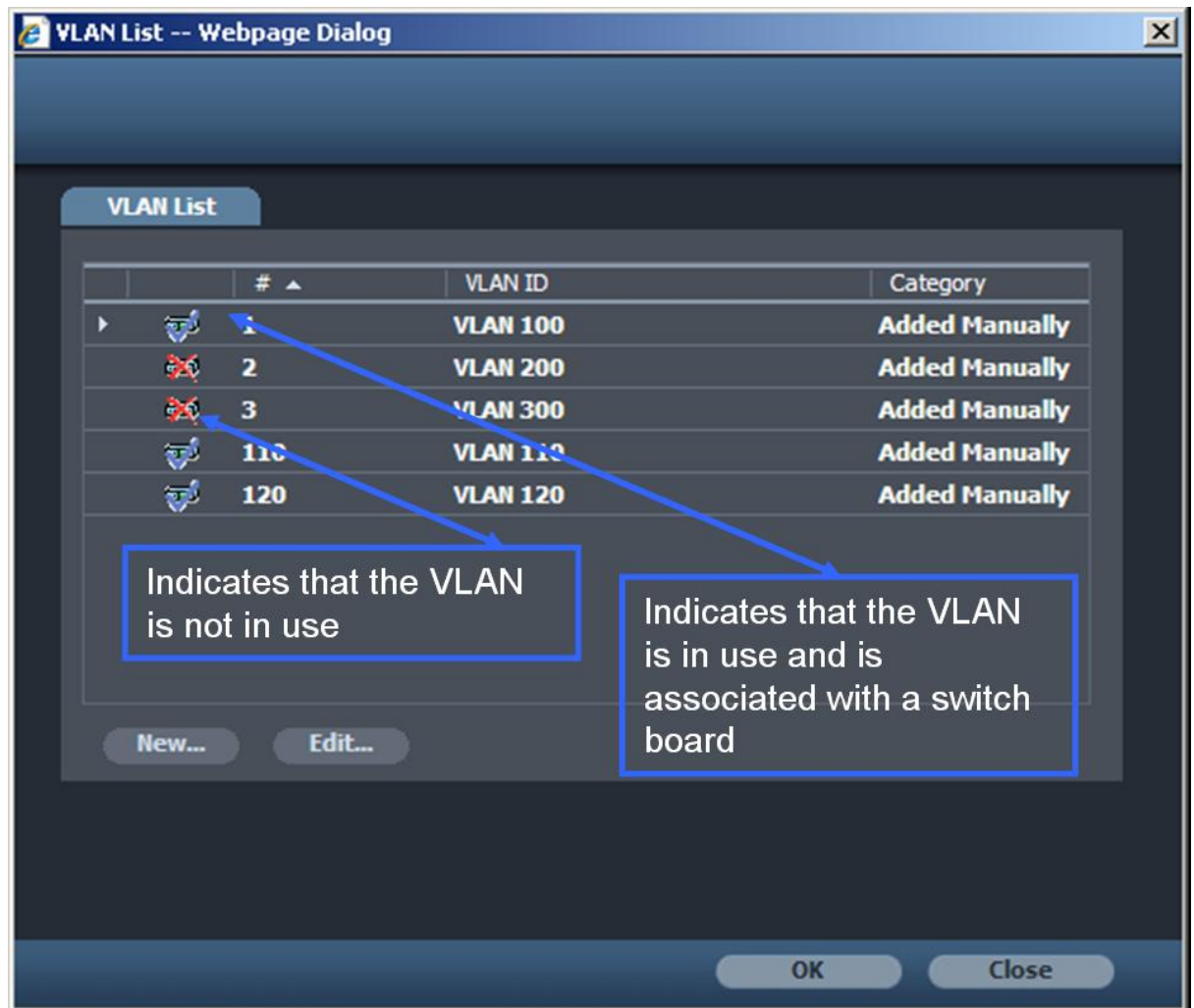



Figure 249 - VLAN List Screen

5. Select an existing VLAN using the arrow icon  and click **OK**.
6. To edit a VLAN click **Edit**, make applicable changes and click **OK**. You are taken back to the VLAN list screen.

If you want to add a new VLAN, click **New**. The following *New VLAN* screen opens.

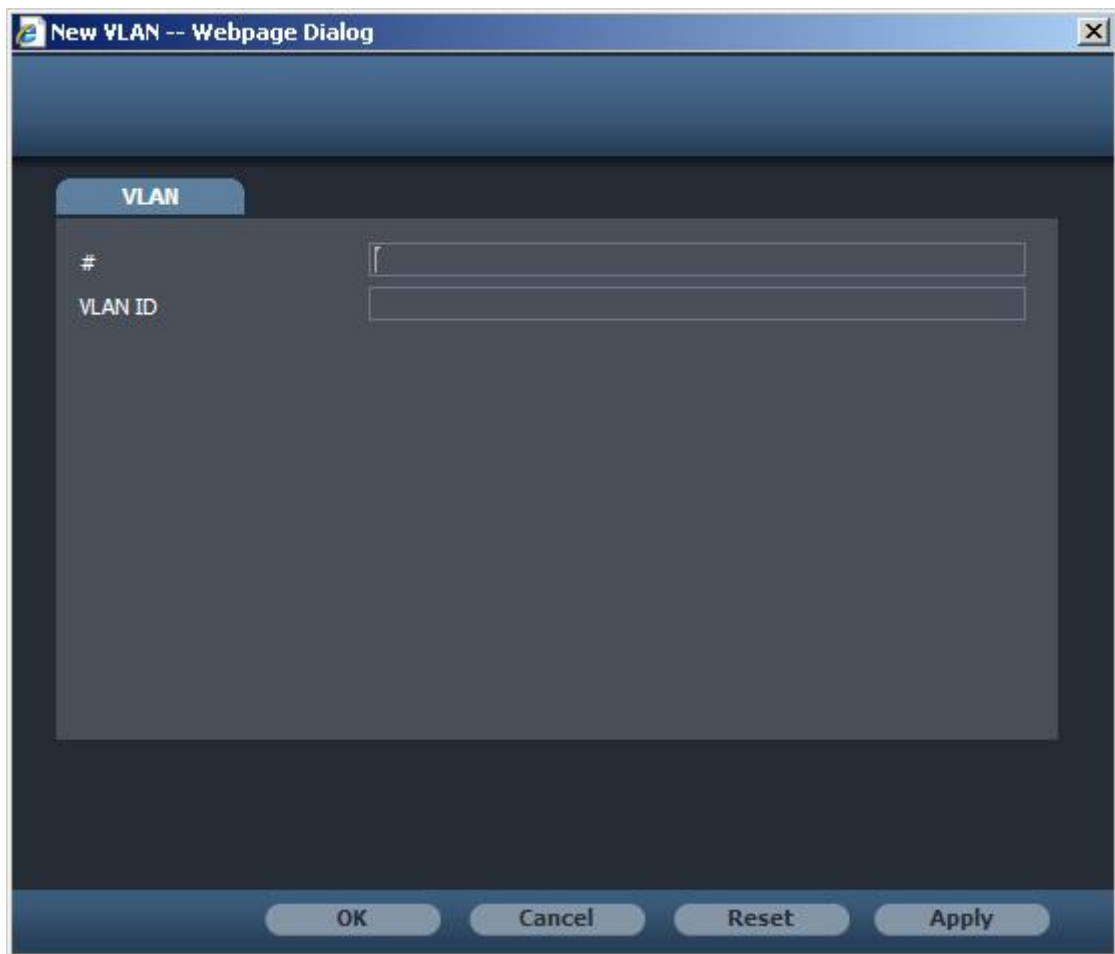


Figure 250 - VLAN New Screen

The first field marked with a (pound sign #) can only be populated with a number and is mainly used for reference purposes.

7. Enter the name of the VLAN in the VLAN ID field and click Apply to save changes. Click **OK** to exit the screen.
8. Click the **Add To List** button and repeat steps 2 through 6 to every newly added device.
9. To remove an item, click **Remove From List**.
10. The *Additional Information* button is intended to specify on-the-fly information that is processed by user defined rules. For additional information, contact a RIT representative.
11. Click **Next** to continue or **Cancel** to abort the operation.

The following *Add to Location* screen opens. The *Add Equipment* tab summarizes all information and their requirements from the previous screen.

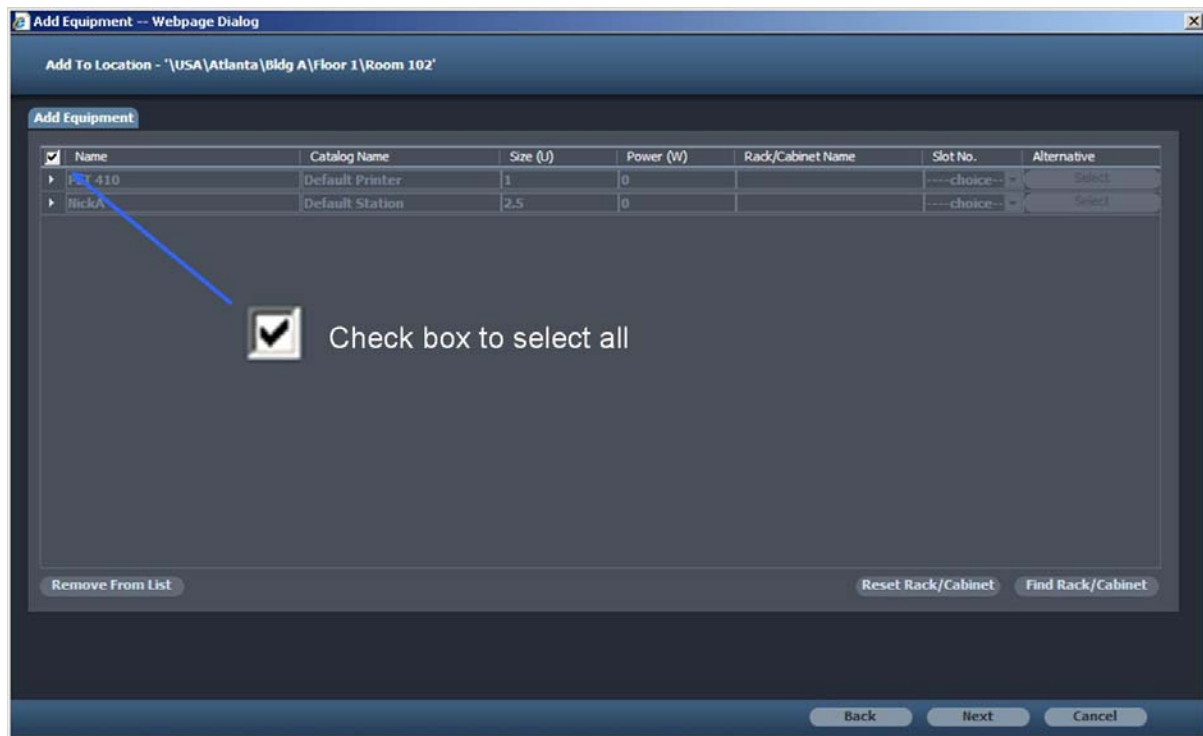
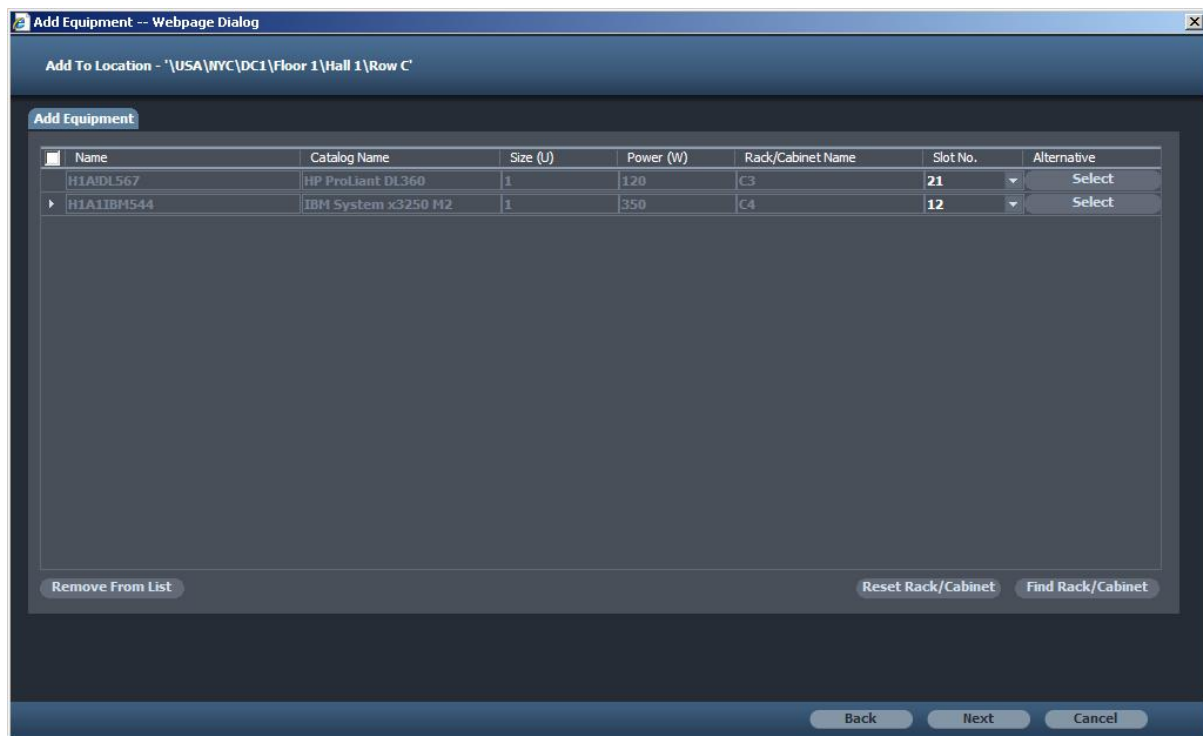


Figure 251 - Add to Location Screen

**Note:**

The items in the above field are taken from the Catalog and cannot be changed. To change, use the **Add** or **Modify** existing catalog item functionality.

12. Note that the fields under *Slot No. and Alternative Rack* are disabled. If you would like to provision the new devices into cabinets you will need to Click **Find Rack/Cabinet**. This action looks for available cabinet space which meets the provisioning criteria of each device. If the search succeeds then the provisioning module will automatically allocate the cabinet with the highest grade and set an available U elevation.
13. After the search has been completed the *Add equipment* screen lists all cabinets which are assigned to the provisioning request. The *Slot No.* and *Alternative Rack* fields are now enabled. Alternatively, you can select **Reset Rack** to clear all data. See the following screen.



To select an alternative rack/cabinet, click **Select** under the *Alternative Rack* field. The following screen opens:

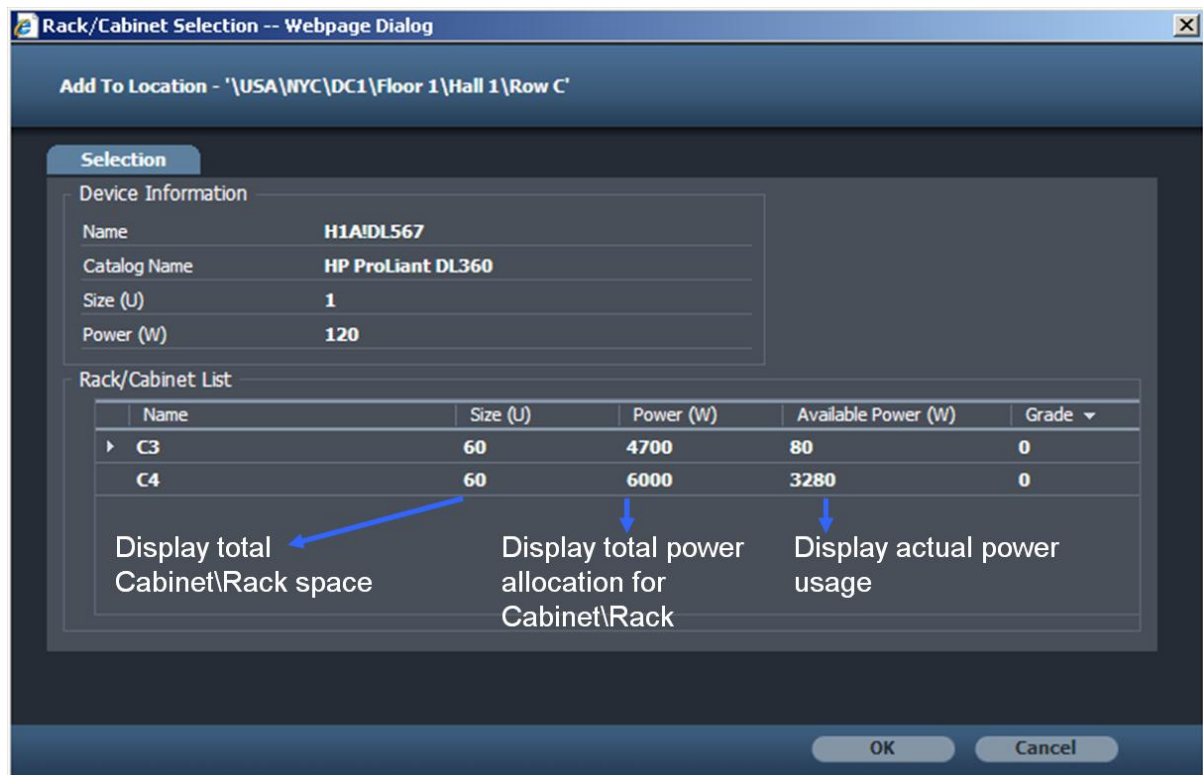

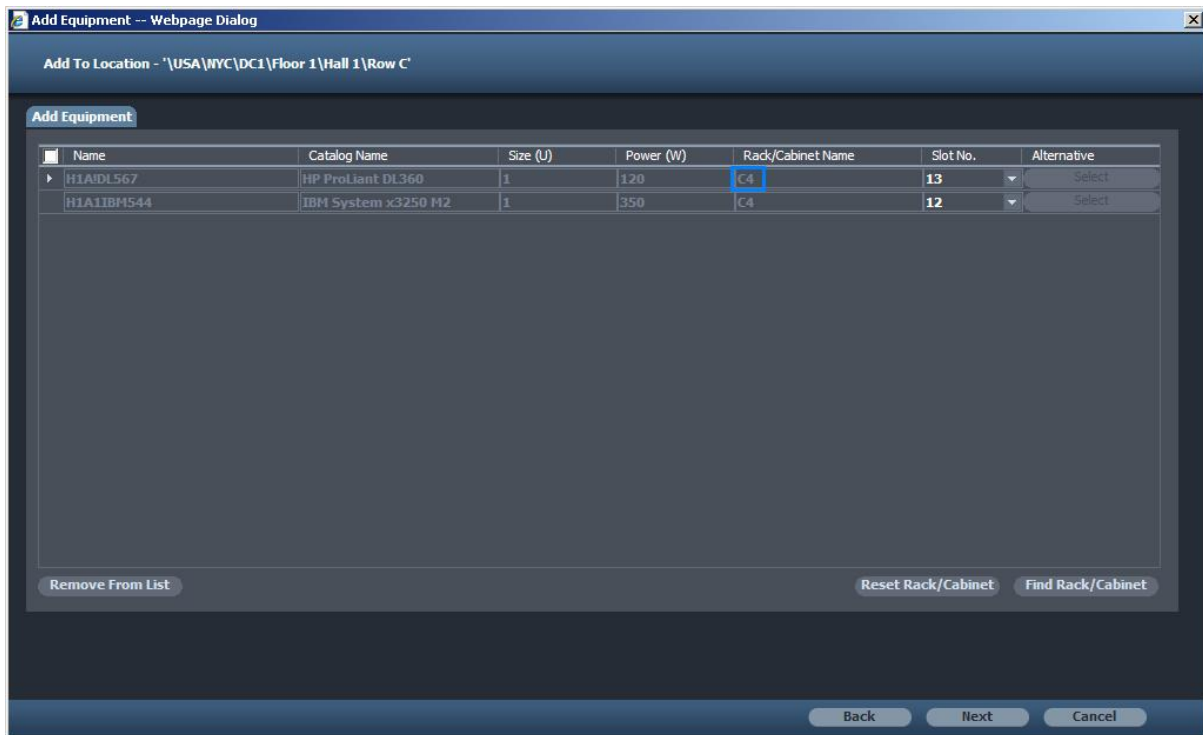


Figure 252 - Add to Location- Rack Selection Tab

14. Select an alternative rack by clicking the arrow icon  from the Rack List and click **OK**. You will be directed back to the main screen. The selected alternative rack now appears in the Rack Name column.



*Figure 253 Add to Location- Add Equipment Tab*

If an item is added directly to a rack, the **Find Rack** button is disabled.

15. Click **Next**. The following *Add Operation List* screen opens:

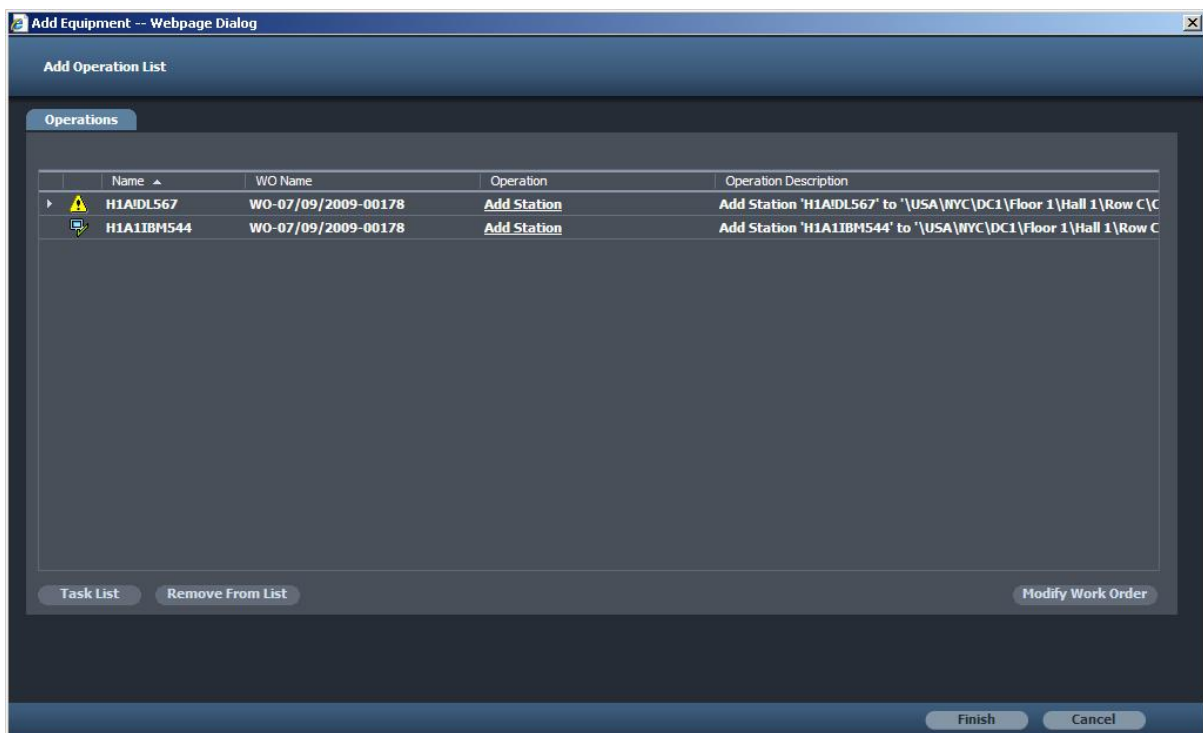





Figure 254 - Add Equipment - Operations Tab

The symbol  indicates that the action could not be performed as the recommended link could not be allocated. See *Error Messages – Examples* for more information on errors.

The symbol  indicates that the add operation was successful.

The symbol  indicates that a multi NIC server has been provisioned but the system could only suggest part of the link.

16. Click **Modify Work Order** to change an operation or task of the selected Work Order.

## Adding Part of Device Network Adapter

The automated Provisioning allows you to add new devices without allocating connectivity to all of their network adapters. This is done by specifying the *No service* service to any network adapter that should not be part of the current request.

### Note:

*If you set all the links of the newly added device to the No service service, then the provisioning module will block you from progressing with your request.*

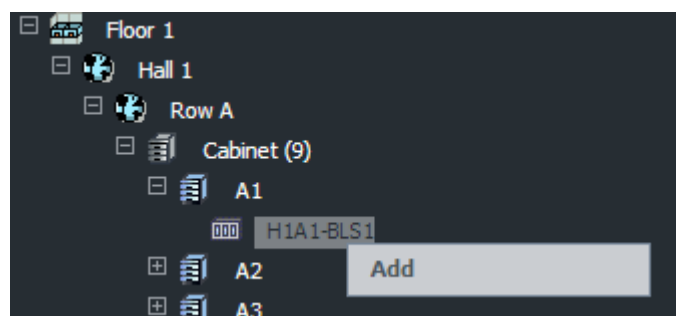
From this point onwards, the application acts in the same manner and allocates resources other than the link which were marked with a *No Service* service.

In order to allocate connectivity resources to the network adapters that were not provisioned at the very first time use the *Change* functionality.

## Adding New Blade into Blade Enclosure

The automated provisioning module allows you to plan the additions of new blades into an existing chassis. The following steps are to be taken in order to provision a new blade into an enclosure

1. Select the target chassis right click it and select the *Add* menu items



2. The *Add equipment* screen opens
3. Specify the exact type of blade that you would like to provision
4. Click **Next**, the following screen opens:



<input checked="" type="checkbox"/>	Name	Catalog Name	Height (Bays)	Width (Bays)	Blade Chassis Name	Bay No.
<input type="checkbox"/>	Device #1	BL460c	1	1		1

Remove From List

Back Next Cancel

5. Within this screen you can specify the target bay where you would like to place the blade. The automated provisioning offers only available bays which fit the size of the newly provisioned blade.
6. From this point onwards the provisioning process is identical to the steps described above.

## Change Functionality

Allows you to generate a Work Order that contains the specific tasks needed for changing device attributes in its current location.

The Change functionality is limited to the boundaries of the original link outlet/ bay location (For blade servers).

### > To change terminal equipment, perform the following:

1. From the *Work Order* screen -> *Location tab* -> Select item \ workspace to change and right-click.

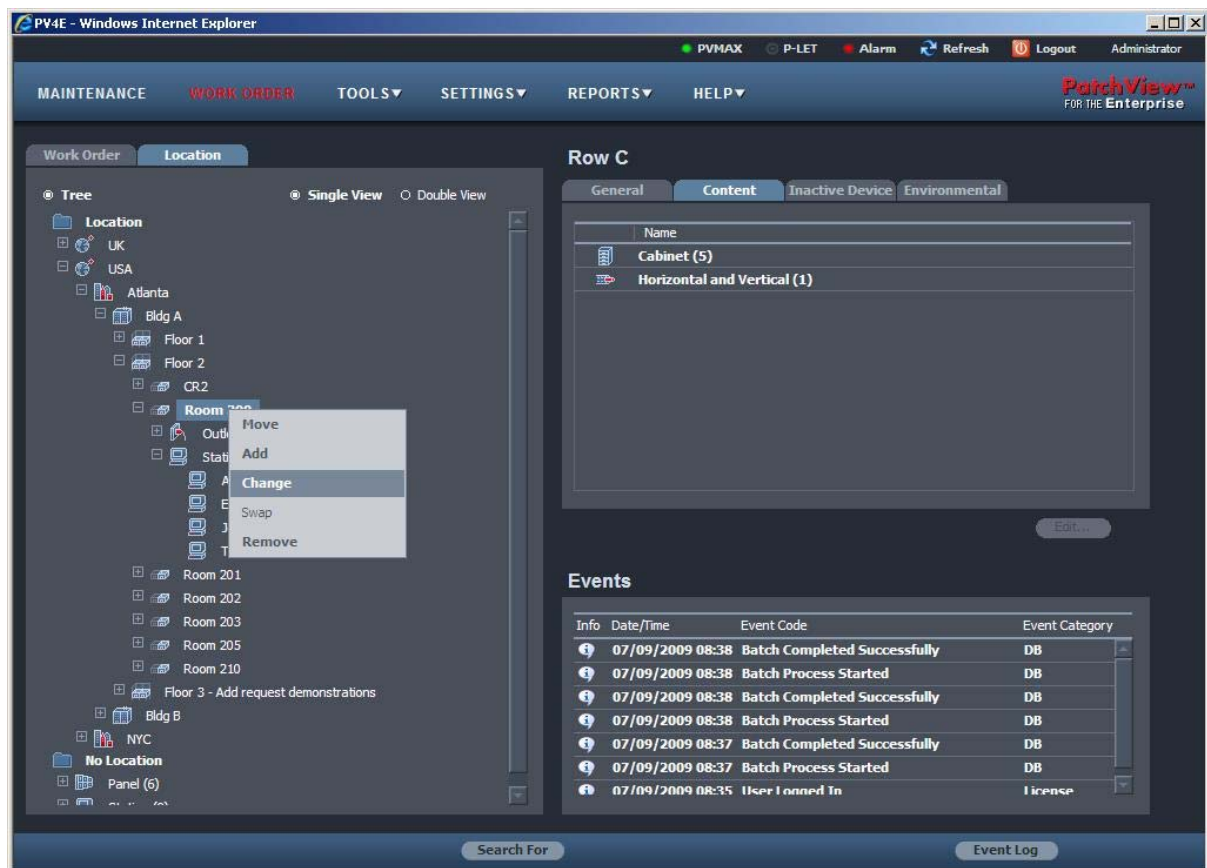


Figure 255 – Initiate a Change request Screen

The following *Change Service* screen opens - note that this ample refers to an entire workspace).

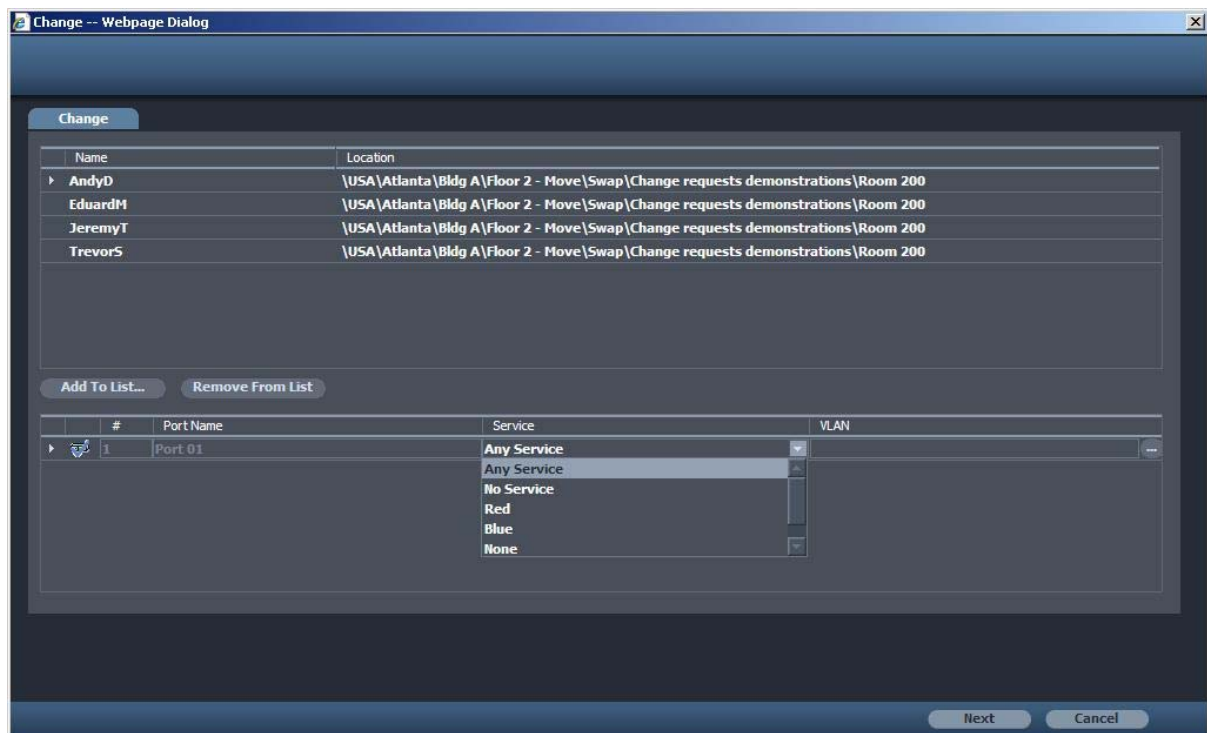


Figure 256 - Change Service Screen

2. Select the item you wish to change. From the *Service* field drop-down menu, select the service to be changed. To **Add To List** or **Remove From List** see section *Adding Single or Multiple Items to Location*. To change/edit **VLAN** refer to *VLAN List Screen*.
3. If the device to be changed is a multiple-NIC device where only part of the services needs to be changed, the rest should be allocated with the *No Service* service. For example, consider a scenario when a dual NIC server was provisioned and only one of its adapters was associated with a link. After some time the user wants to link the second adapter to the network. In this case, the user would need to allocate service to the available NIC. In addition, he would be required to set the service of the existing link to *No Service* so it would not be affected by the provisioning request.
4. Click **Next**. The following *Change Service Operations* screen opens:

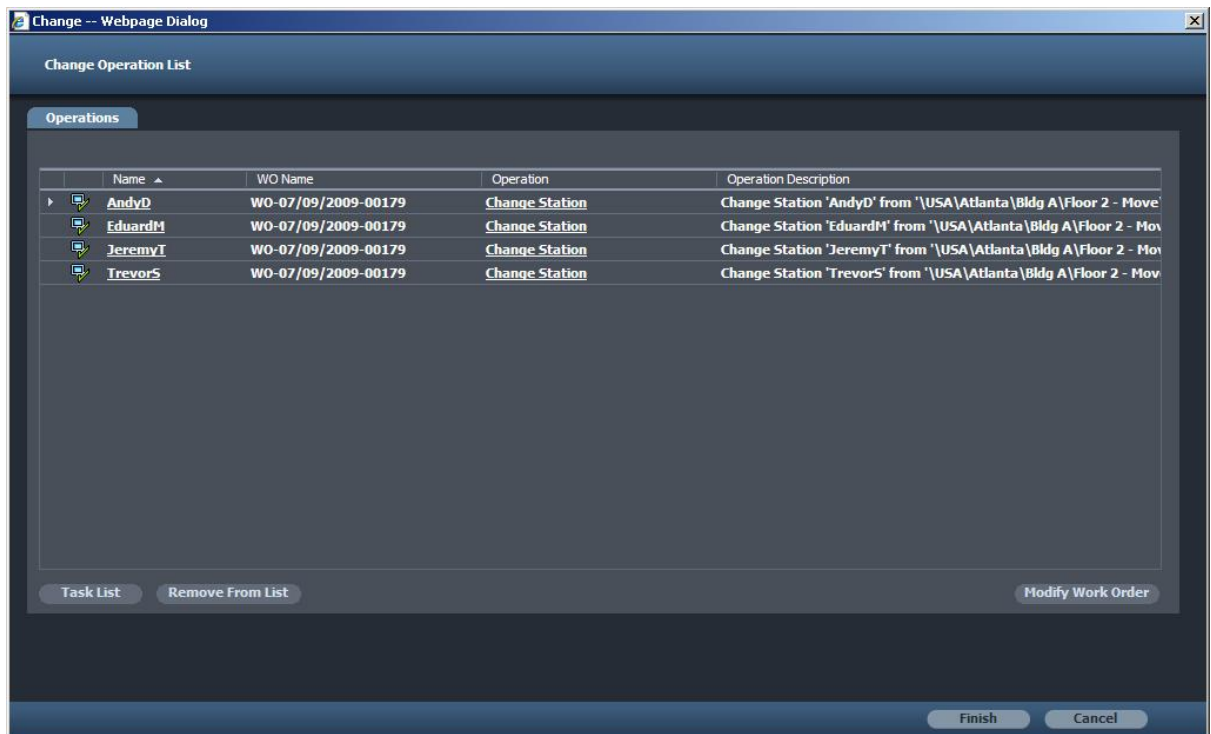


Figure 257 Change Service Operation List Screen

The item has been changed and the port reserved. Click **Finish**.

## Swap Functionality

Allows you to generate a Work Order that contains the specific tasks needed for performing a swap (x to y) (y to x). Items can be from the same or different location.

> **To Swap items, perform the following:**

**Note:**

*Selecting more or less than two items disables the swap option.*

1. From the *Work Order* screen > *Location tab* > Location tree > select the items to swap. Hold down the Ctrl key and select two items with the mouse. Select **Swap** from the context menu.

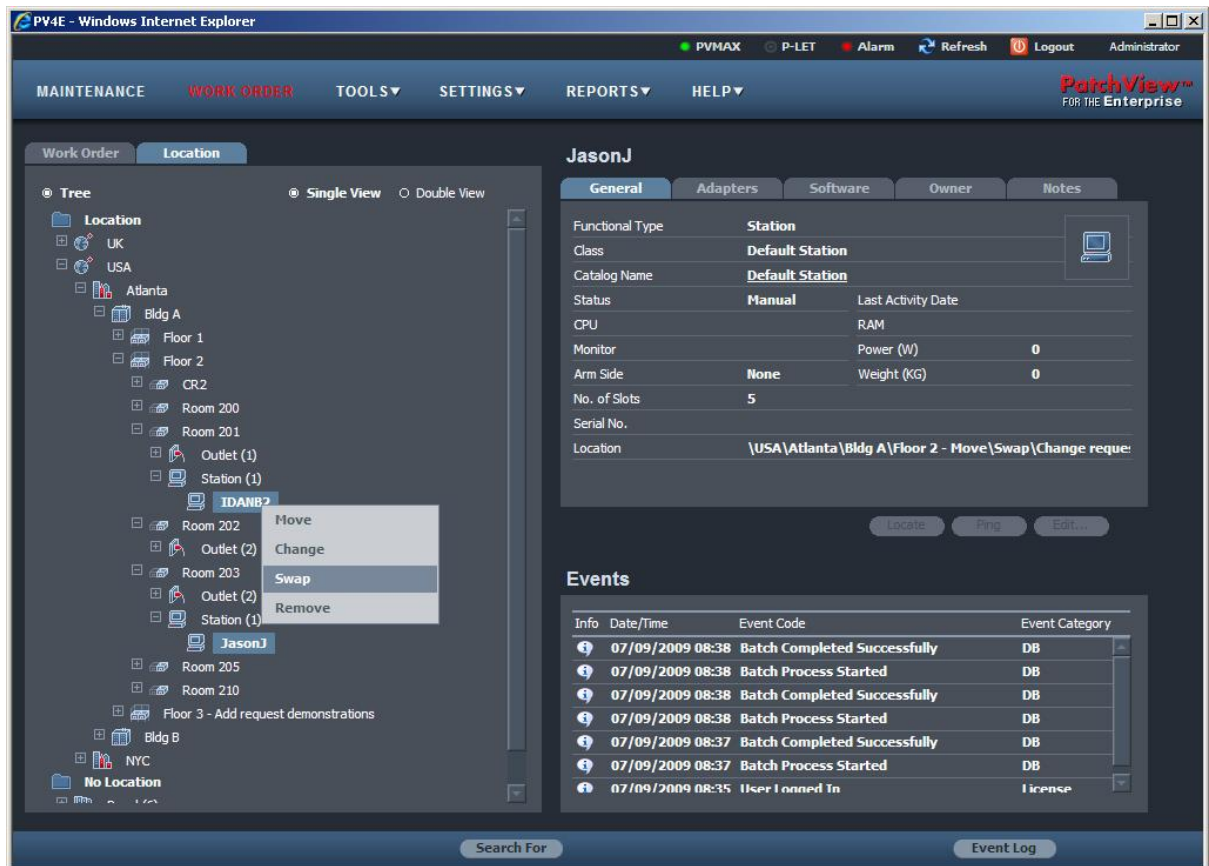


Figure 258 – Initiate Swap request Screen

The following screen opens.

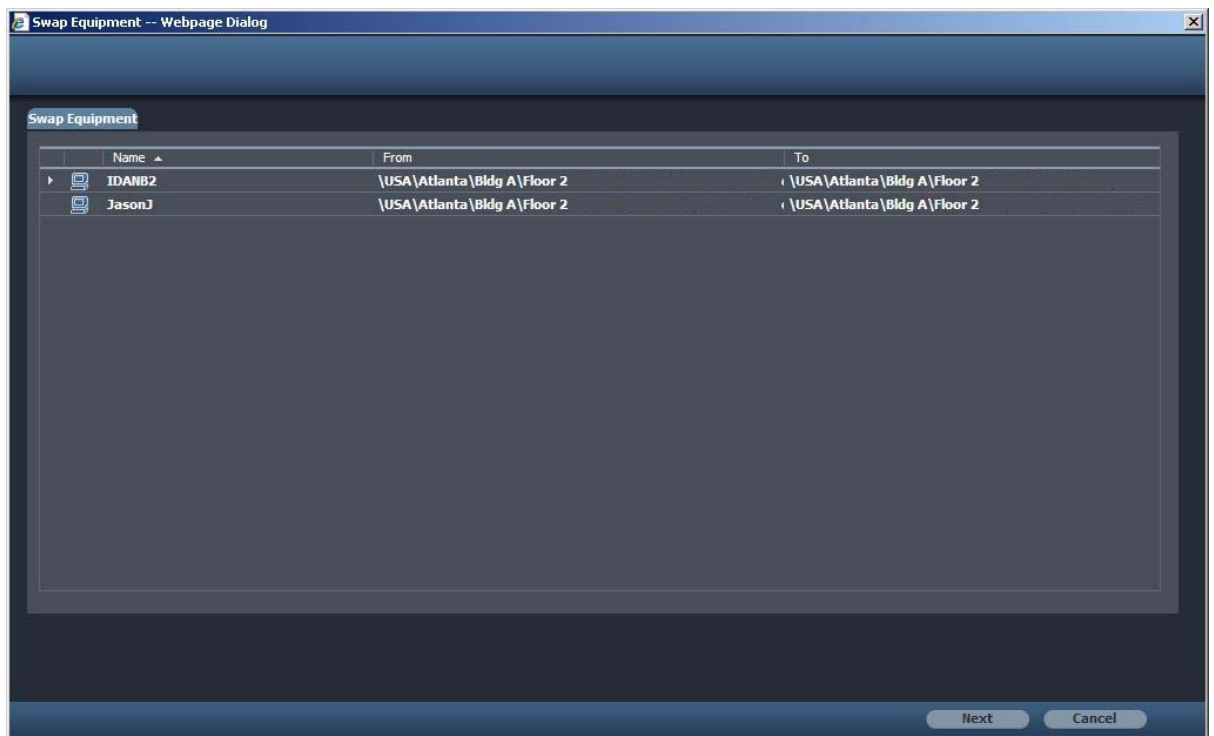


Figure 259 - Swap Equipment Screen

**Note:**

*If Swap is performed between two items and one action fails, the second action will also fail.*

2. The *Swap Equipment* screen opens. Check the information is correct and click **Next**. The Swap Operation List screen opens.

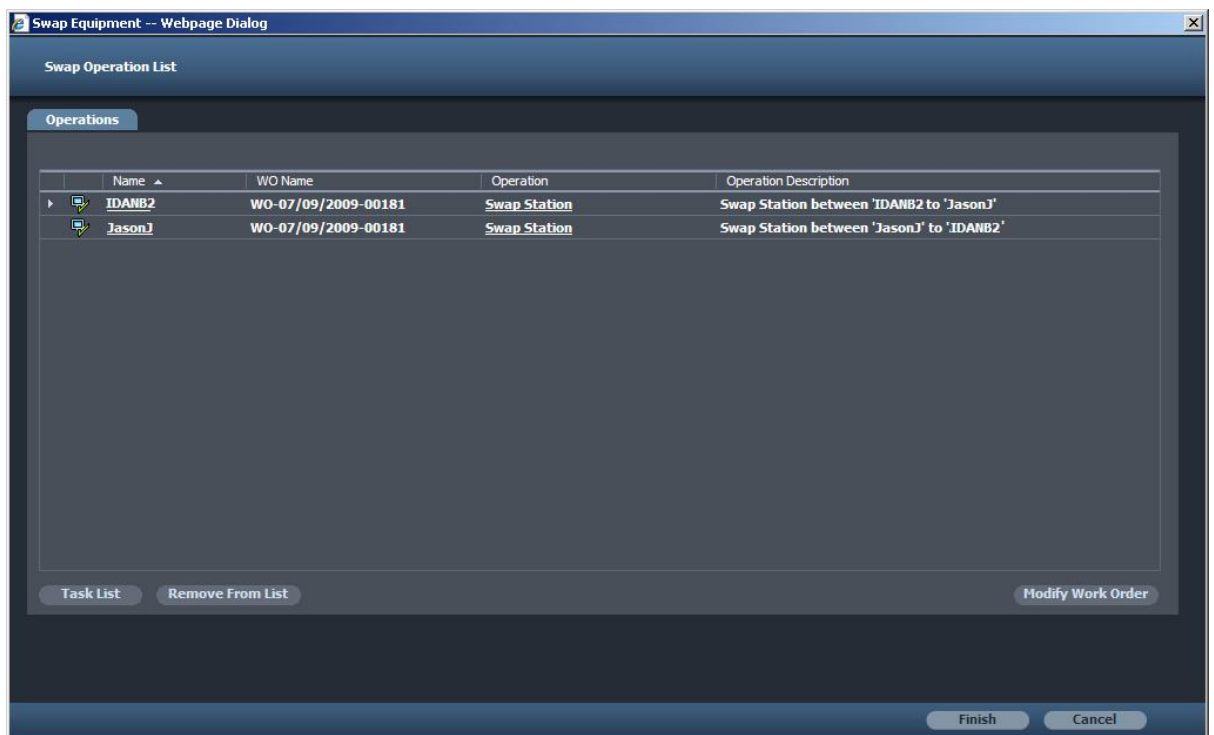


Figure 260 - Swap Operation List Screen

Click **Modify Work Order** to change an operation or task of the selected Work Order. (For more information on modifying a Work Order, see *Error! Reference source not found.*). Click **Finish**

**Note:**

*When swapping workspaces the swap operation can still be performed even if one item cannot be assigned.*

## Remove Functionality

Allows you to generate a Work Order that contains the specific tasks needed for removing any terminal equipment device and to free network resources.

**Note:**

*This action will not delete objects from the Location database until the Work Order has been completed by the technician.*

> **To remove terminal equipment, perform the following:**

1. From the *Work Order* screen > *Location tab* > Select the equipment to remove and right-click > select **Remove** from the context menu.

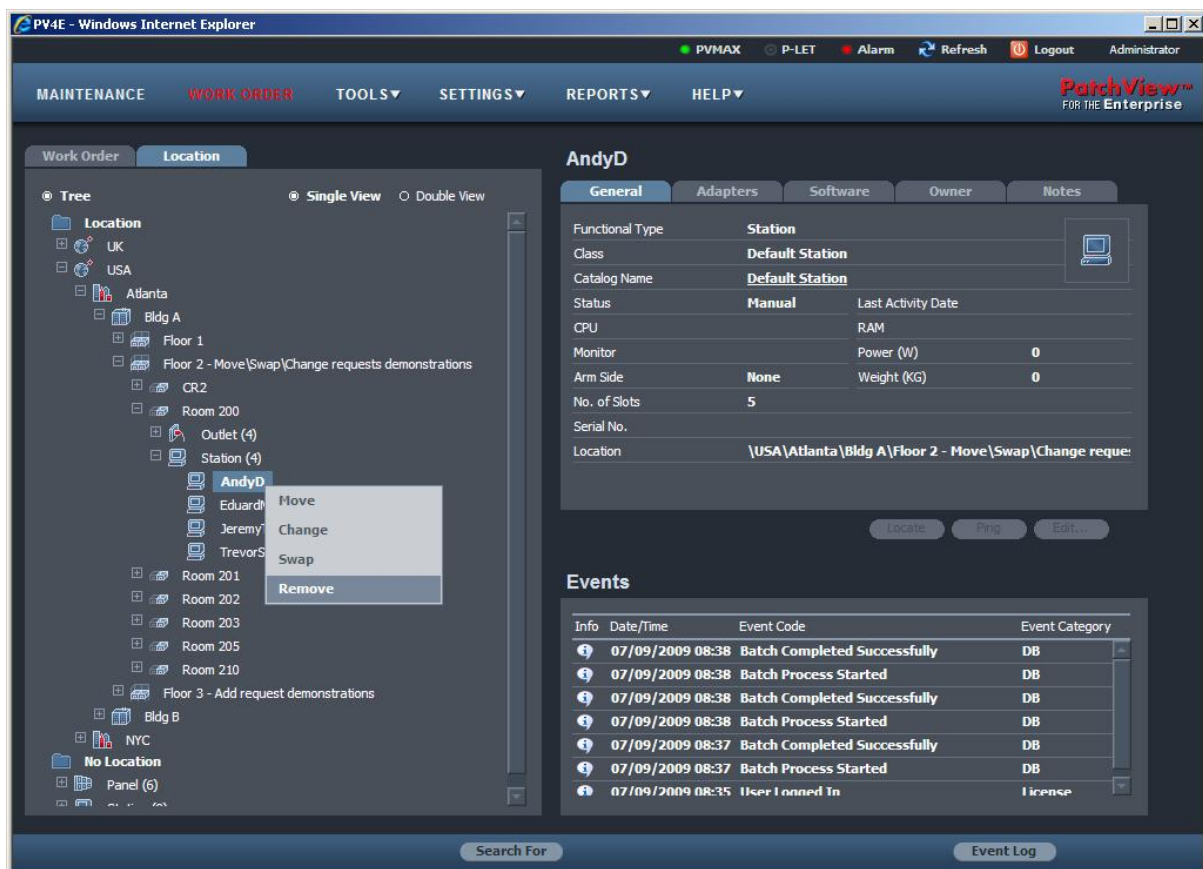


Figure 261 - Work Order Screen – Initiate Remove request

2. The following *Remove Equipment* screen opens.

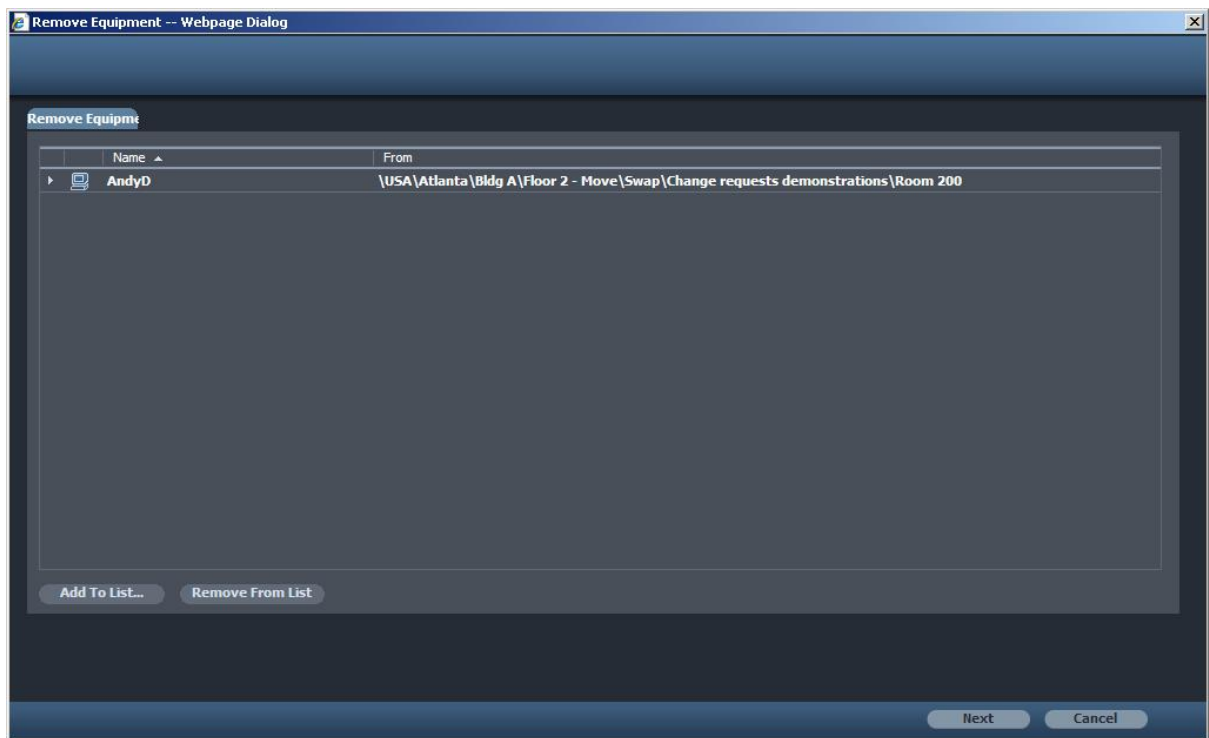



Figure 262 - Remove Equipment Screen

3. You can add items from the list by holding down the Ctrl key while selecting with the mouse. Simply click on any arrow . Click **Remove From List**. The selected item/items are removed from the list.
4. To add an item, click **Add To List**. The following screen opens:



**Add Equipment -- Webpage Dialog**

**Add Equipment To Request**

**Equipment**

Name:

Class:

Location:

Functional Type:

Catalog Name:

Include Sub Location: ☒

Name	Functional Type	Class	Catalog Name	Location
------	-----------------	-------	--------------	----------

Clear Search Now OK Cancel

Figure 263 - Add Equipment to Request Screen

5. Enter details of the item you wish to search for and click **Search Now**. The following screen opens:

**Add Equipment -- Webpage Dialog**

**Add Equipment To Request**

**Equipment**

Name:

Class:

Location:

Functional Type:

Catalog Name:

Include Sub Location: ☒


Name	Functional Type	Class	Catalog Name	Location
PLT-1	Printer	Default Printer	Default Printer	\USA\Atlanta\Bldg A\Floor 2
plt100	Printer	Default Printer	Default Printer	\USA\Atlanta\Bldg A\Floor 1\Room 1

1 (Total Records: 2)

Clear Search Now OK Cancel

Figure 264 - Add Equipment to Request Screen



6. Hold down the Ctrl key and click the arrow  with the mouse to select the items you wish to add. Click **OK**. The following screen opens with the added item.

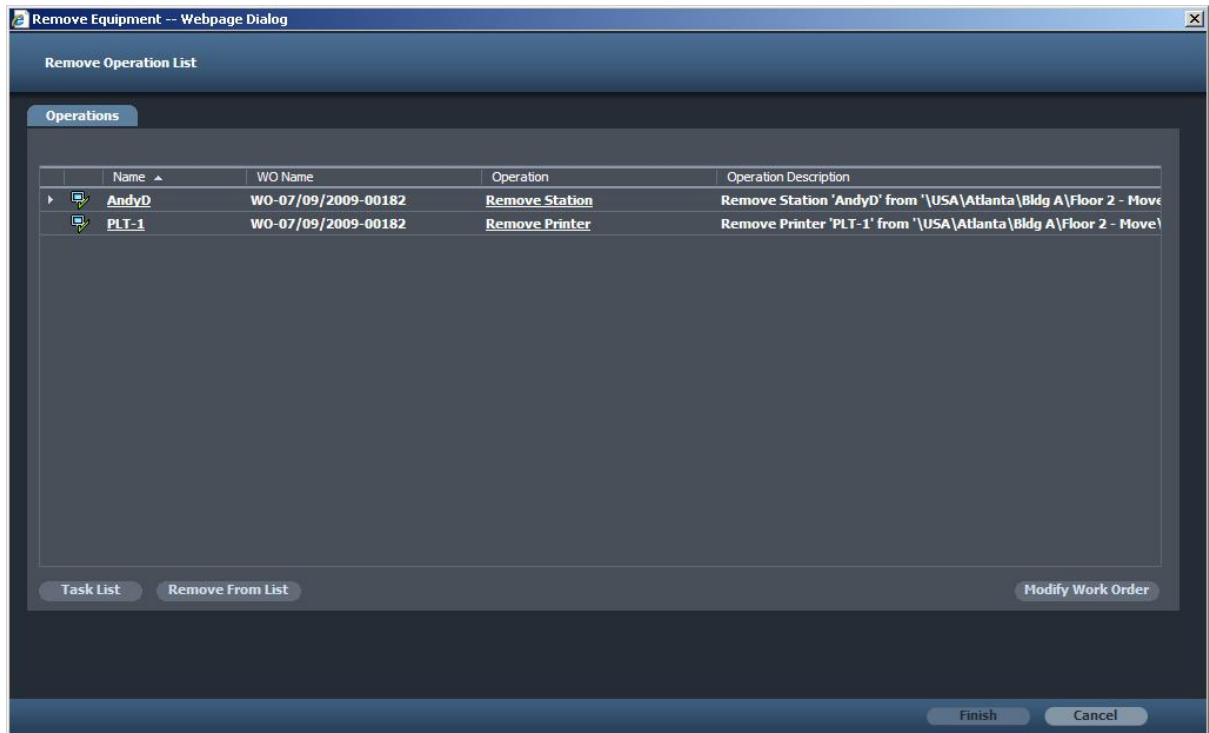


Figure 265 - Remove Equipment Screen

7. Click **Next** to continue. Click **Finish** to complete the task.

## Reserved Resources

When an item is reserved it cannot be assigned to an additional Work Order until the original Work Order is performed or deleted.

Whenever a Work Order is created and stored, the system recognizes the components in the Work Order and reserves the resources.

The following screen displays a *reserve task* that is automatically generated by the system.

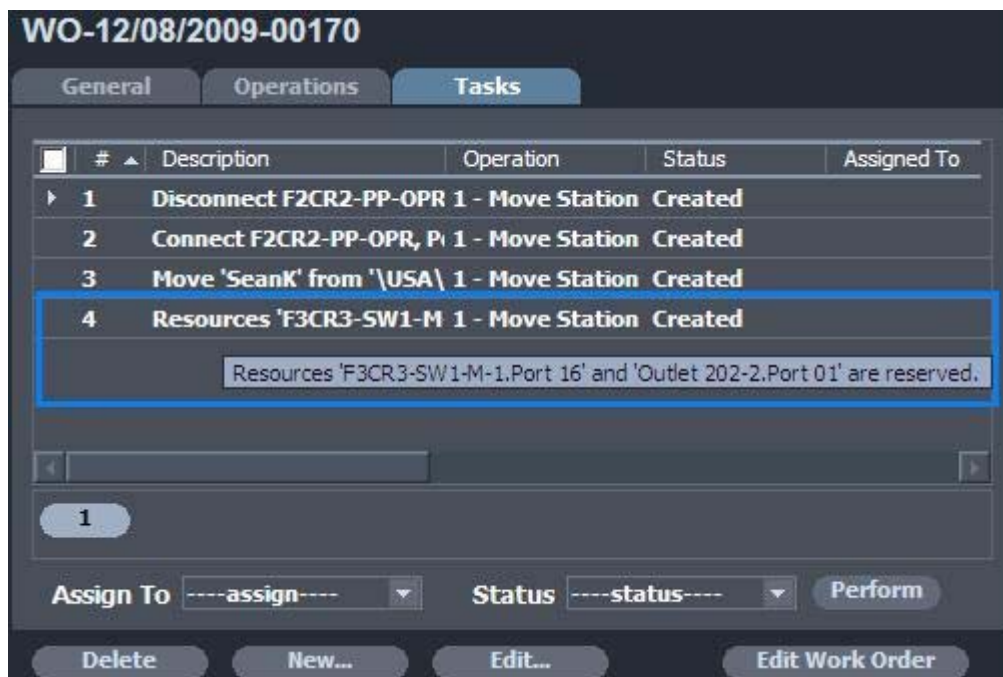


Figure 266 - Work Order Screen

Rack space reservation is only relevant for requests where the destination location is a rack/cabinet. After the Work Order has been generated and stored, the reserved items are displayed in the *Show Rack* functionality as follows:

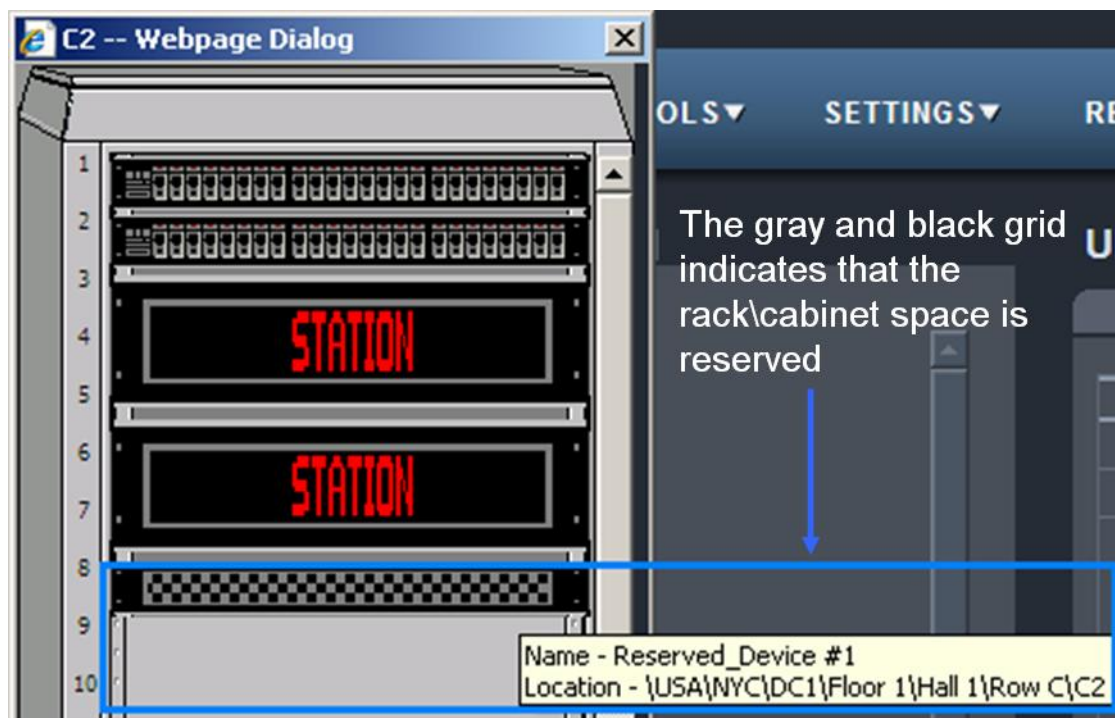


Figure 267 - Show Rack box

The following screen displays a reserved port.

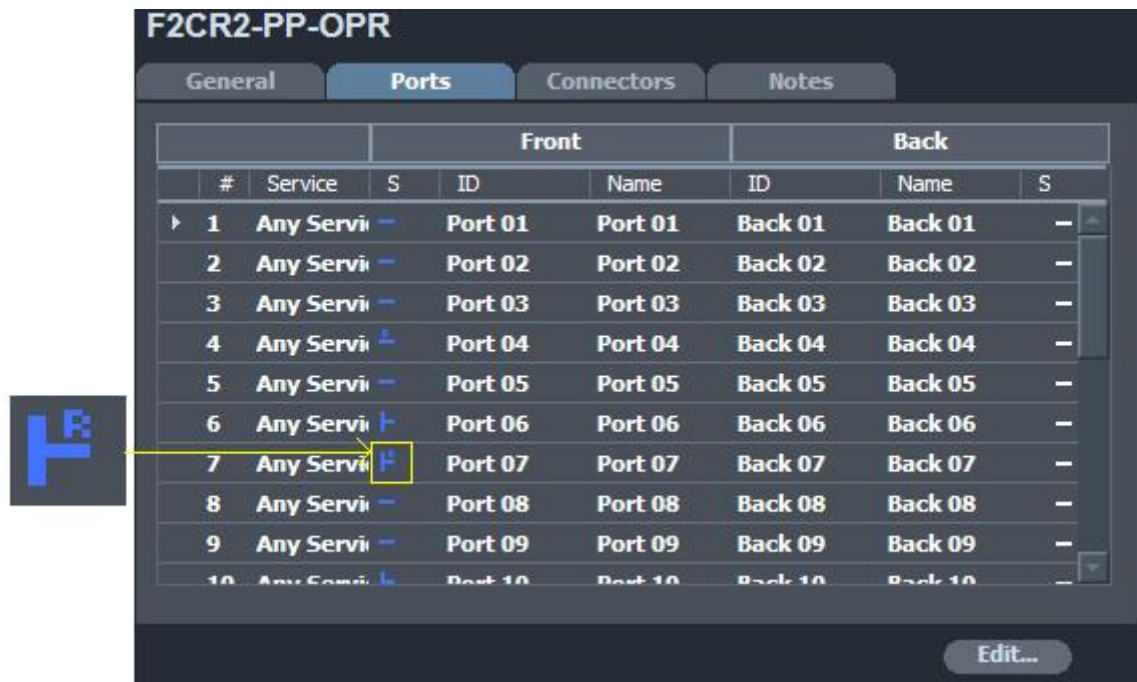


Figure 268 - Work Order Screen

The following screen displays an example of an item that has been reserved. If you try to run a provisioning request for a reserved item, the **Next** button will be disabled.

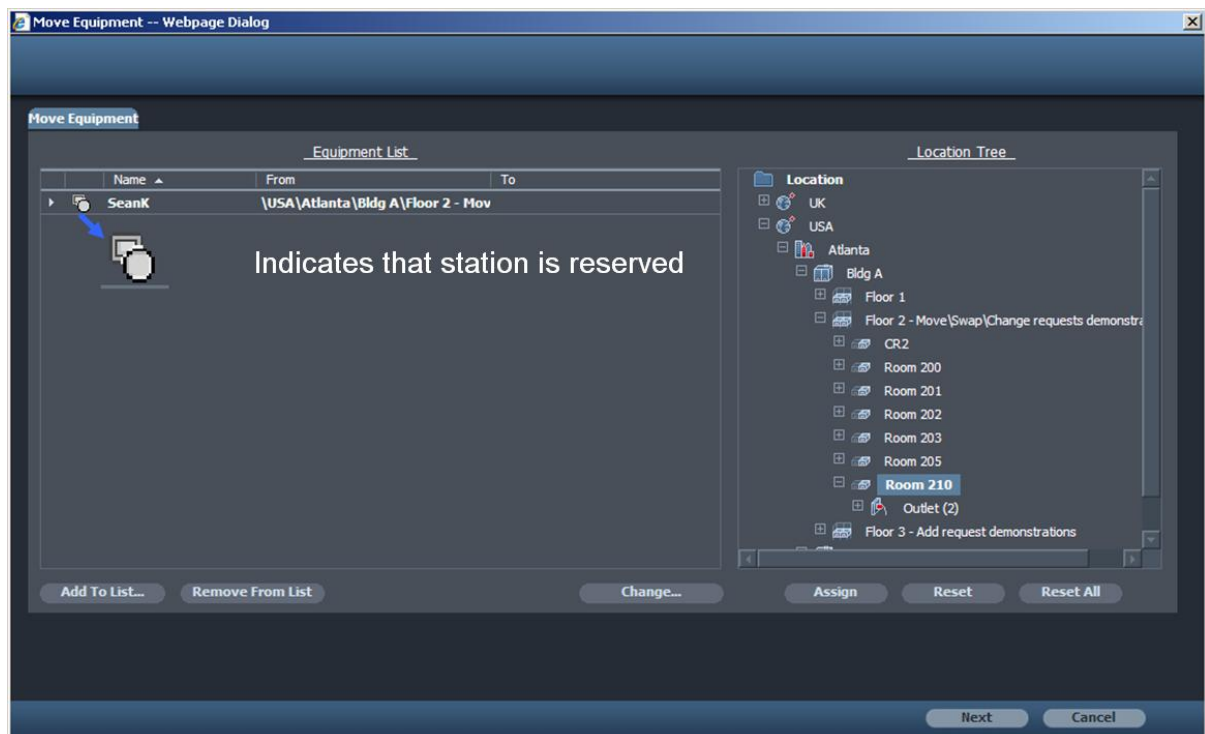



Figure 269 - Swap Equipment Screen

## Error Messages

The following section lists all error messages received in the Provisioning application.

An error is identified by the following icon.  To view the error, point the mouse over the icon to view the tool-tip error. See example in the following screen.

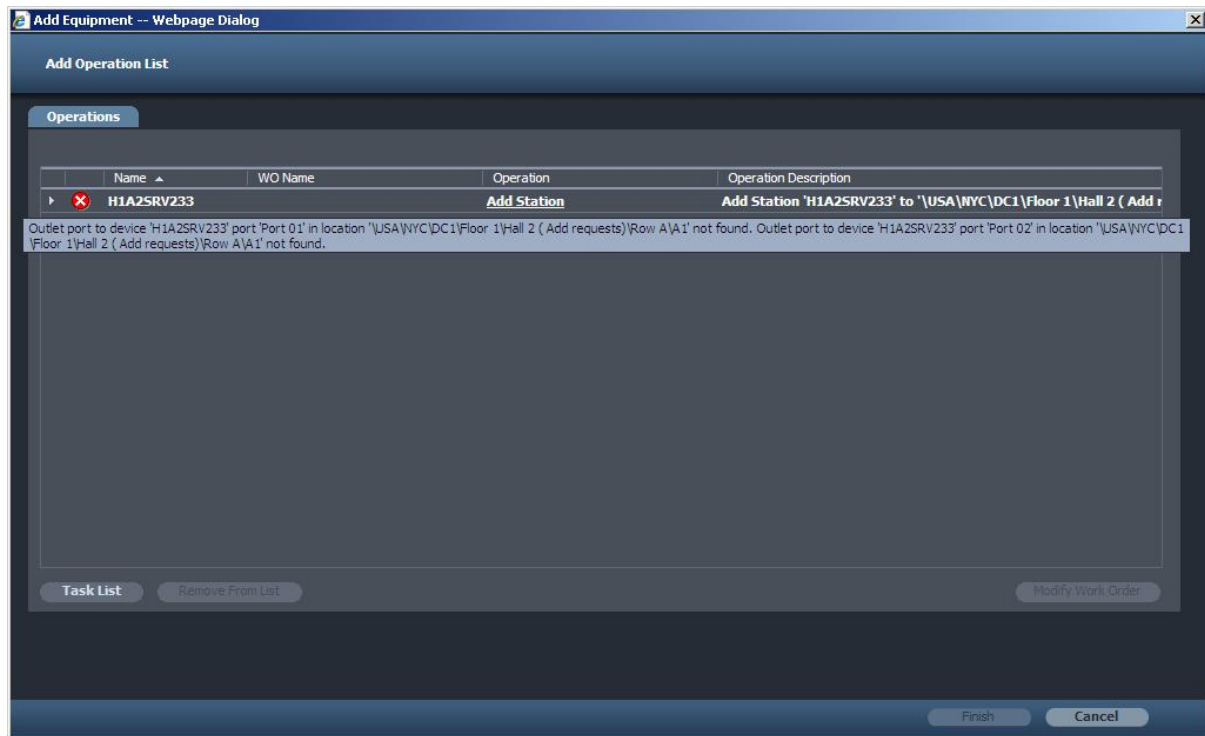


Figure 270 - Provisioning Screen - Error

## Error Messages Table

The following table lists all errors from the Provisioning functionality.

Error	Explanation
"Outlet port to device 'station 01' port '1' in location 'room 360' not found".	Either there are no available free outlets in 'room 360' or all outlets in the room are reserved.
"Switch port to device 'station 01' port '1' in location 'room 360' not found".	Switch ports in the communication room are either in use or reserved.
"Required service 'red' for switch port to device 'station 01' port '01' in location room 360' is not available."	Switch ports with the required service could not be found in the communication room.
"Required service 'red' for outlet port to device 'station 01' port '01' in location 'room 360' is not available."	Outlet ports with the required service could not be found in 'room 360'.

<i>"Route to device 'station 01' port '01' location 'room 360' not found."</i>	PatchView could not generate a route between an outlet to a switch port (this may happen because there are insufficient panels in the same connectivity zone).
<i>"Chain operation failed for device 'station 01' port '01' in location room 360'."</i>	The operation could not be performed due to an error in one of the devices in the chain.
<i>"Swap operation failed for device 'station 01' port '01' in location 'room 360'."</i>	'Station 01' could not be swapped from its source location to its target location.
<i>"Recommended link to device 'station 01' port '01' in location 'room 360' not found."</i>	PatchView has generated links for 'port 01' of device 'station 01' in 'room 360' but could not be assigned to the station. The reason for this is due to insufficient resources.
<i>"Free slot not found for device 'station 01' in rack '200'."</i>	A slot cannot be allocated to 'station 01' due to lack of rack space.
<i>"Insufficient power in rack '200' for device".</i>	A slot cannot be allocated to 'station 01' because there is not enough available power.
<i>"Required VLANs '123' for switch port to device 'station 01' in location 'room 360' is not available."</i>	The switch port with the required VLANs list could not be found in the communication room.
<i>Device '%01' action could not be performed; recommended link could not be allocated.</i>	General error message for the provisioning module

## Chapter 8: Work Order and Managing Links

### Work Order Overview

A Work Order is created by the System Manager and used to assign and track different tasks issued to technicians and technicians. These tasks can vary from creating and editing links to installing software and relocating terminal equipment.

Work Orders can be created either from the Edit Link Worksheet or in the Work Order Module. The Work Order Pane contains a list of all existing Work Orders, and their tasks.

Work Orders are defined according to their status. These are Created, In Progress, Completed and Closed. A list of all the Work Orders appears in the Work Order Pane when the Work Order Module is opened. The user has the option of viewing Work Orders with a specific status.

A further option allows the user to view the work orders according to either the Work Order ID or the technician that the Work Orders have been assigned to.

The Information Pane shows all the tasks assigned to the selected Work Order. It is here that can view, create and work with a selected Work Order and its task/s.

Each individual task has its own status. When a task is opened it receives the status Created. This status is changed to In Progress or Send to Scanner, depending on the task and then to Completed by the technician or technician (or by PatchView).

Once the Work Order is issued, the person assigned to each task, documents the progress of the individual tasks perform at the site.

When the status of each task in the Work Order is changed to Completed, the status of the Work Order changes automatically to Completed. After the completed Work Order has been checked and approved by the manager, the status is changed to Closed.

A task can be cancelled prior to implementation.

**Note:**

*In order to monitor the task implementation process, RiT recommends that, as a rule, you first create a Work Order from the Work Order dialog, create your links as Work Order tasks. This is an alternative to working in the Edit Link Worksheet, which sends the instructions directly to the scanners.*

## The Work Order Window

The Work Order screen is divided into three windows and are as follows:

Work Order Pane

- Work Orders that have been created are listed here
- The option to view the list according to the Work Order status is selected in this pane
- Viewing the lists according to the Work Order ID or the Engineer
- Location tab, which shows the location tree. This is used to select the items to be linked

Tasks Pane

- Tasks are created and/or edited in this area. The statuses of the tasks are viewed in this pane.

Events Log Pane

- This view lists all the activities that take place in the Network

## Opening the Work Order Window

> **To open and view the Work Order Window**

1. Click the **Work Order** button located in the Menu Bar of PV4E. The Work Order screen opens and the **Work Order** button turns Red to show that it is the active window. The Tasks Pane does not open until tasks are added to a work order.



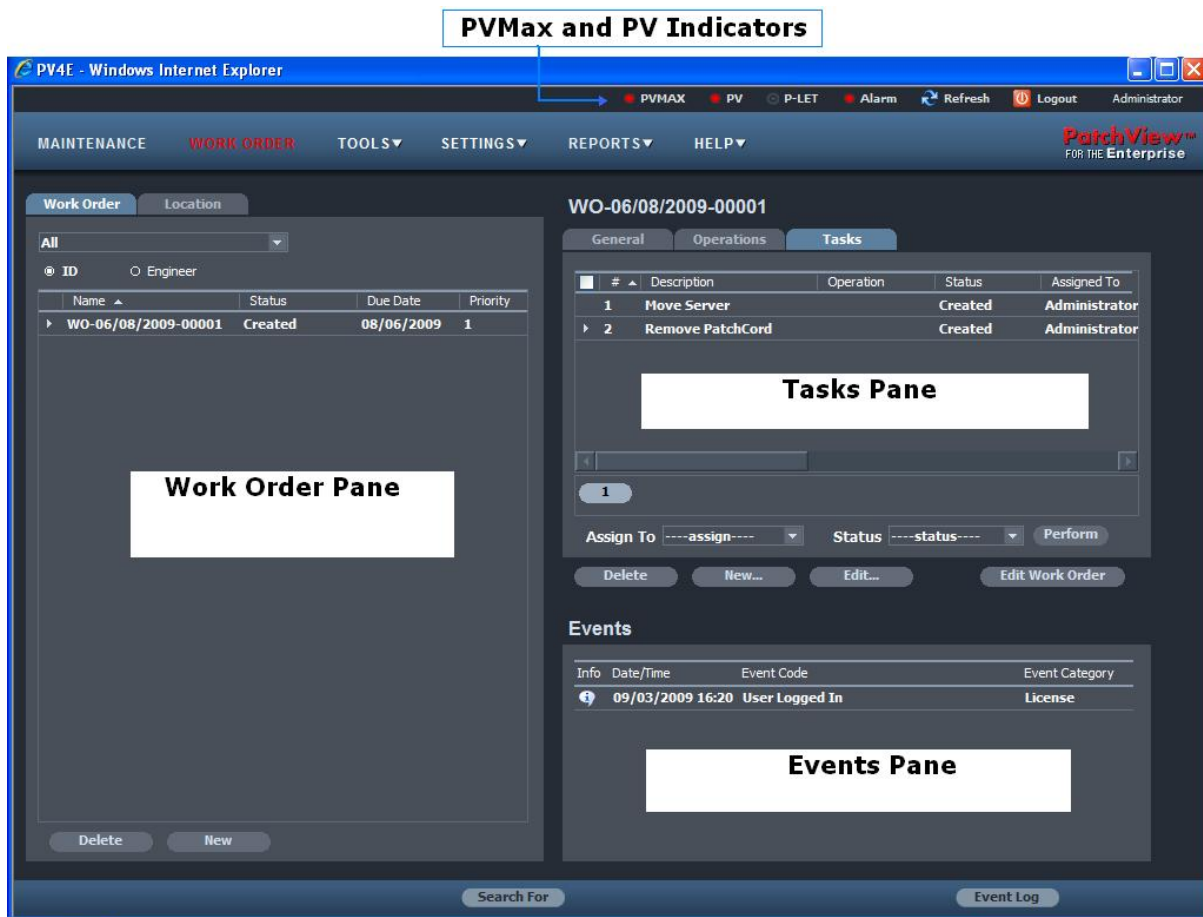



Figure 271 - Work Order Window

## Filtering the Work Orders

The Work Orders can be filtered according to their status. For example, you can view those Work Orders which have been created but work has not yet begun on them. In this case, select Created. Only those Work Orders with the selected status appear in the tree. Select All to display all existing Work Orders.

### > To filter the Work Orders

1. Select the Work Orders to be viewed by clicking on the  next to the **All** field (optional).  
A pull-down menu opens.

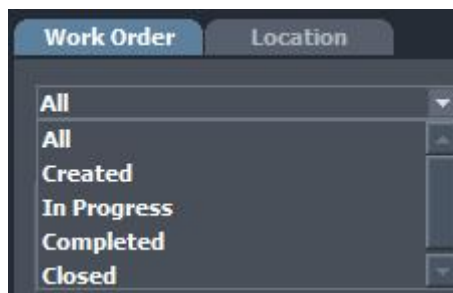


Figure 272 - Work Order Menu

2. Select the required status.  
The specified Work Orders will be listed in the Work Order Pane.



## Work Orders Listed Under ID or Engineer

The Work Orders can be viewed according to Work Order ID (the default) or according to assigned Engineer, in which case, the tree displays only Work Orders containing tasks assigned to technicians. A list of all tasks assigned to each technician appears below the technician's name.

> **To view the Work Orders assigned to each technician**

1. Click the **Engineer** button (optional) to view the list of Work Orders assigned to an technician.  
The Engineer Tree opens.

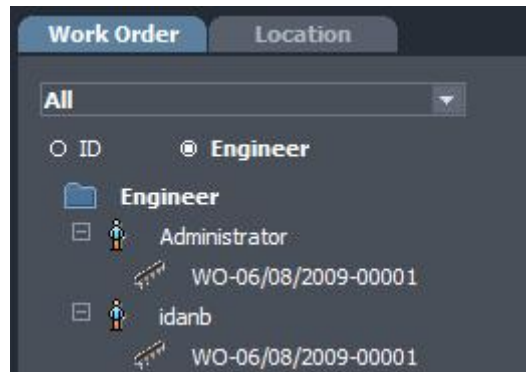


Figure 273 - Engineer Tree

2. Click the **ID** button to return to the original view.

## The Work Order

**Note:**

*If PV4E is currently off-line, it is recommended that you go on-line if the work order/s includes Dynamic Links. See Working on-line, Edit Link Chapter.*

Work Orders can be created, edited and deleted.


There are two ways to create a new Work Order. These are either from the Work Order Module or from the Edit Link Worksheet. The following section explains the Work Order within the Work Order Module.

When you open a Work Order, its status of Created is automatically set.

## Creating a New Work Order

The Systems Manager or Administrator opens the Work Orders. These are assigned to authorized personnel who execute them.

### > To create a new Work Order

1. Click the **Work Order** button located in the Menu Bar of PV4E. The Work Order window opens.
2. In the Work Order Pane click the **New** button.  
The Work Order dialog opens.
3. The system assigns the unique ID number of this Work Order. If the automatic Work Order ID assignment is enabled in System Setting. You can accept it as it is, add to it, or change it completely.
4. In the Description box, type a short description of the Work Order (optional).
5. In the Priority field, change the priority level for the Work Order by clicking the  indicators. PV4E provides 10 levels, in order of importance (level 1 being the most important). The system defaults to 1.

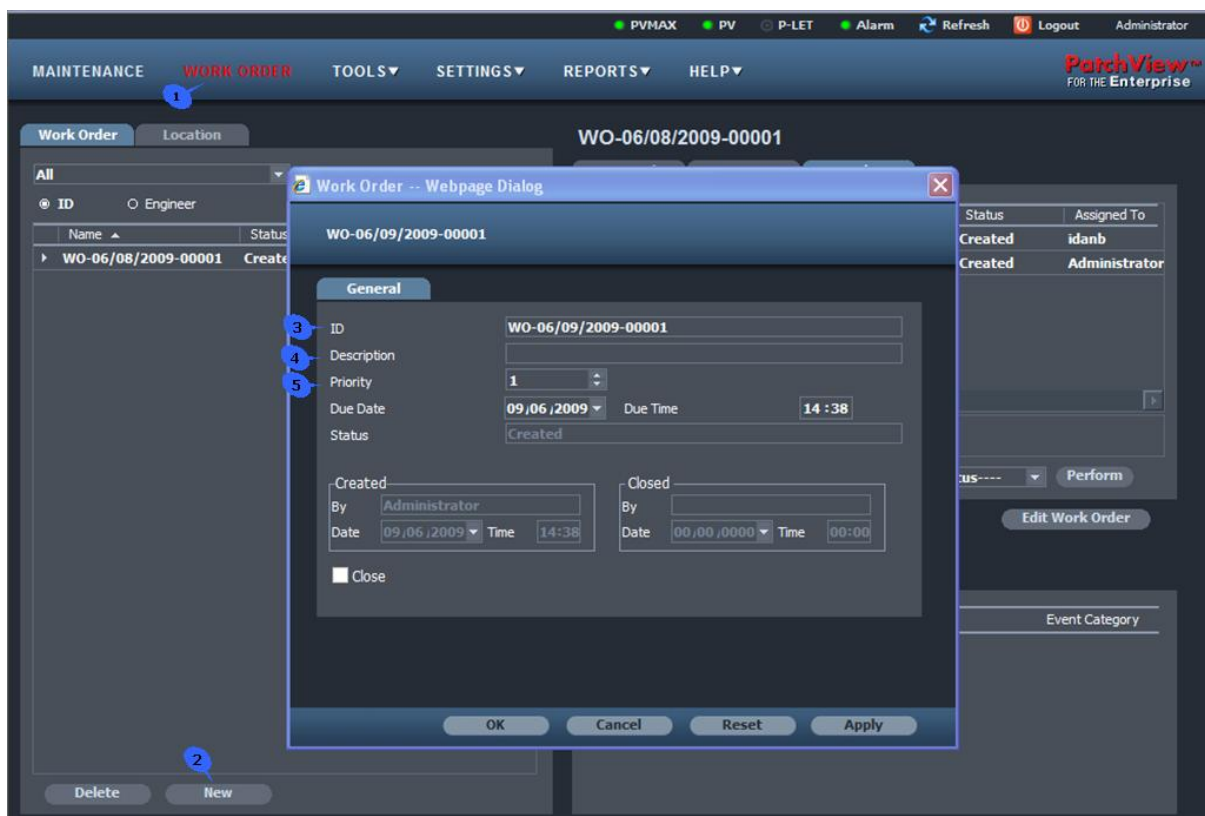



Figure 274 - Creating a New Work Order

6. To change the Due Date from the current date (optional), click the  button. The calendar opens.
7. Select the date that you want the Work Order completed by.
8. Close the calendar.
9. Change the Due Time (optional).

**Note:**

The Work Order dialog will show that the Status is Created. It will also show who created the Work Order, the date and time. The system uses the login name as the default for the Created By field.

10. Click the **OK** button to close the dialog or one of the other options.  
The new Work Order is now listed in the Work Order Pane.

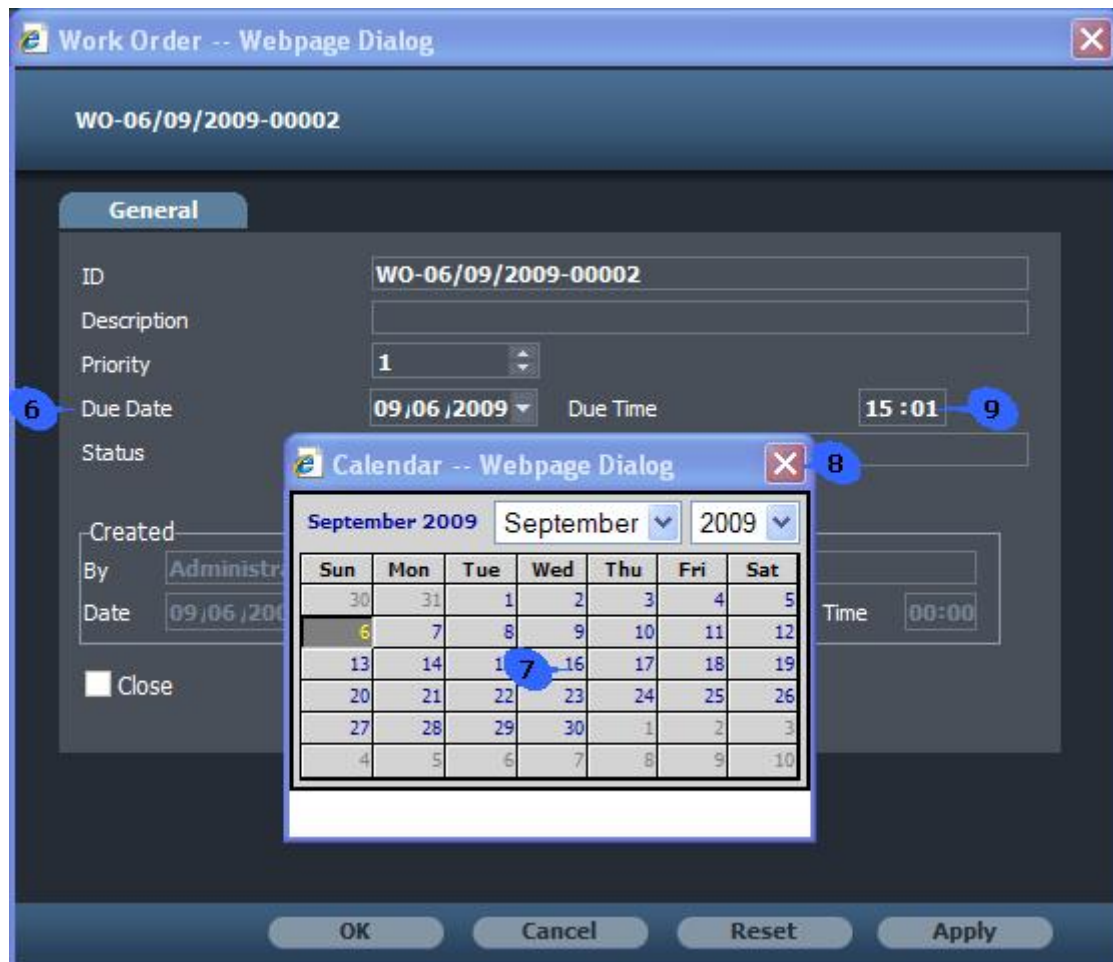


Figure 275 - New Work Order Created

## Editing a Work Order

### > To edit a Work Order

1. Select the Work Order that is to be edited.
2. Click on the Edit Work Order button in the Tasks Pane.
3. Edit the ID, Description, Priority and Due Date and Time as required.
4. Click the **OK** button to close the dialog or one of the other options.

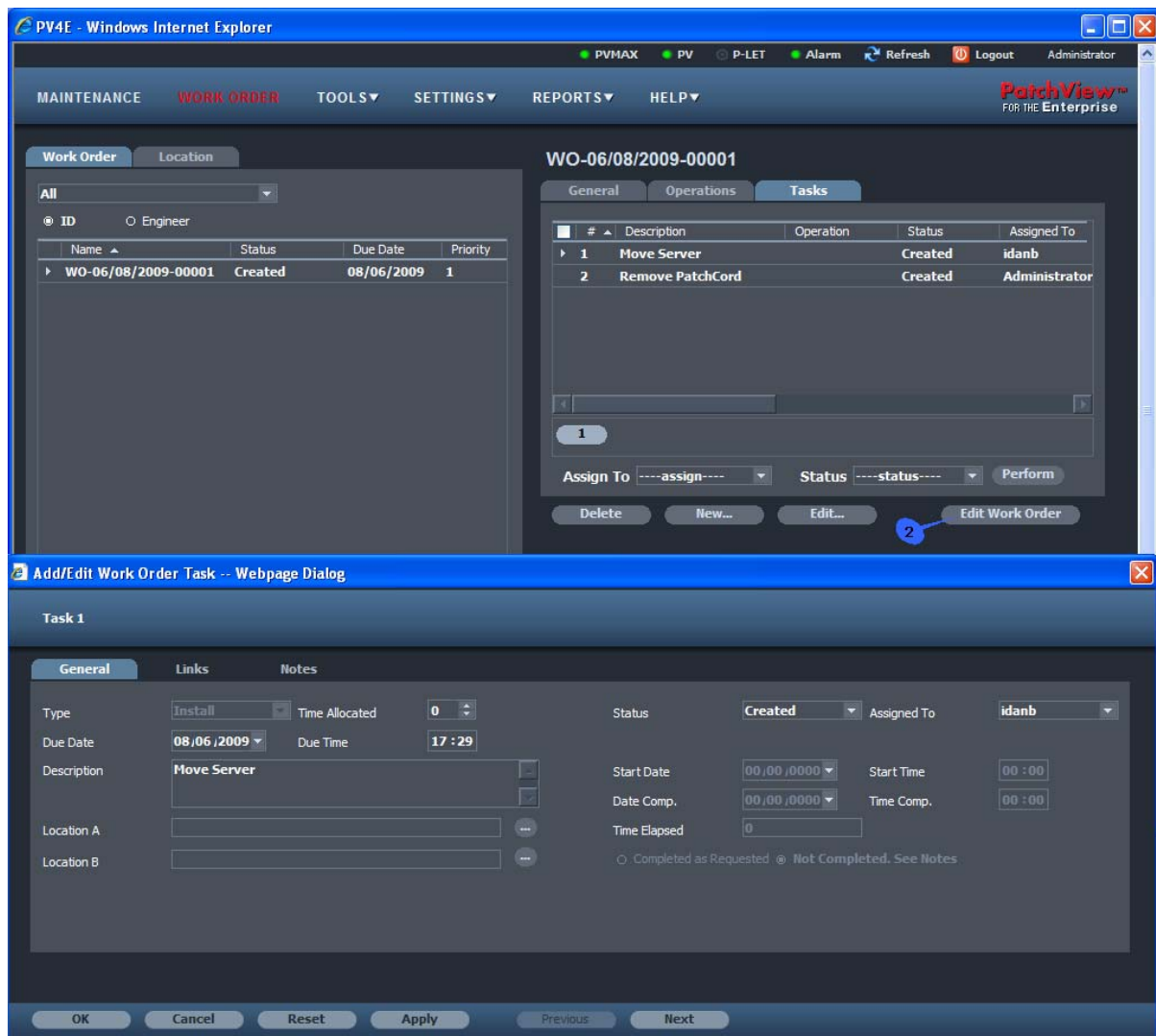


Figure 276 - Editing a Work Order

## Deleting a Work Order

A Work Order can be deleted under the following conditions:

Its status is Closed

Its status is Completed

Its status is Created, but there are no tasks assigned to it

Its status is Created, and all the tasks assigned to it still have the created status.

### > To delete a Work Order

1. Select the Work Order that is to be deleted.
2. Click the Delete button in the Work Order Pane.
3. Click either **OK** or **Cancel** in the alert message.  
The Work Order will be deleted.

## Tasks

A Work Order is made up of a task or several tasks that are assigned for implementation. These Tasks are assigned to a technician who executes them on site. Tasks can be created, edited and cancelled.

### Creating a New Task

Each individual task has its own status. When a task is opened it receives the status Created. This status is changed to In Progress or Send to Scanner, depending on the task and then to Completed by the technician or technician. PatchView, depending on the task will change the status automatically.

When the status of each task in the Work Order is changed to Completed, the status of the Work Order changes automatically to Completed, and may then be closed by the manager.

A task can be cancelled prior to implementation.

There are two main types of tasks. These are either Link Tasks or additional tasks, regarding the actual installation of either the hardware or software of the network. These tasks are:

Task	Function
Link	Used to create new links. (Either Static or Dynamic)
Break Link	Used to break existing links. (Either Static or Dynamic)
Install	These tasks deal with other network maintenance tasks such as <ul style="list-style-type: none"><li>• Installing network cabling system</li><li>• Installing outlets and hardware</li><li>• Removing or relocating equipment</li></ul>
Remove	
Relocate	
Change	
Move	Used to move devices between locations.
Reserved for Device Resources	Used for resources reservation until the work order is completed
Other	User can add tasks through the system table dialog.

Creating a Work Order task is done in two steps. When the Work Order Task opens, it opens in the general tab. Basic information is filled in including the tasks that are not link-related. Only link-related tasks are inserted into the Links Worksheet with specific instructions.

### Adding a Link/Break Link Task to a Work Order

1. In the Work Order Pane select the Work Order that the tasks are to be assigned to.

2. Click the New Task button to open the Work Order task Worksheet.
3. The *Add/Edit Work Order Task* dialog box opens.

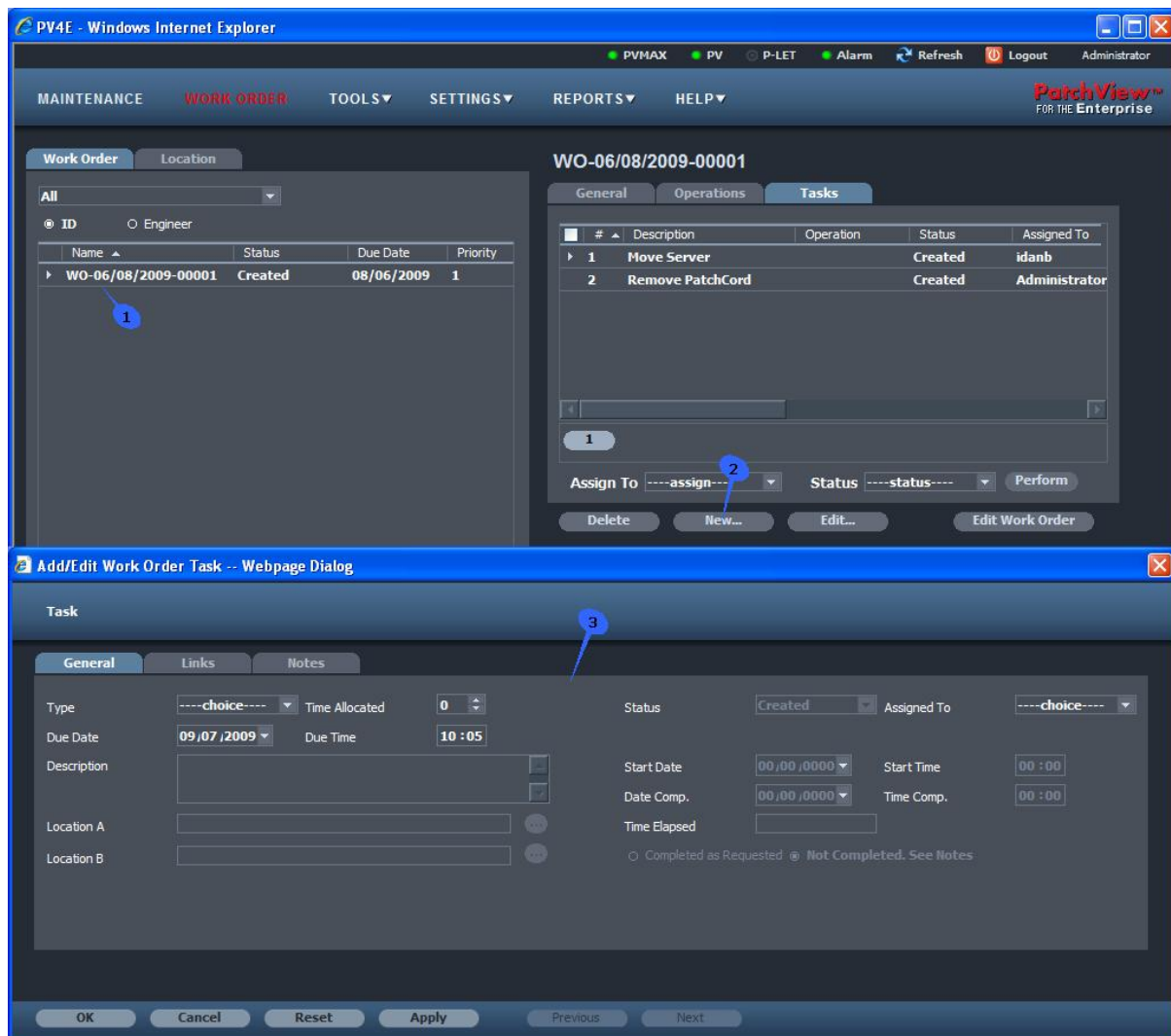



Figure 277 - Adding a Link/Break Link Task to a Work Order

4. Click on the  next to the Type field and select either the Link or Break Link option (optional).  
The user can start from the link form, and automatically the type will be set correctly.

**Add/Edit Work Order Task -- Webpage Dialog**

**Task**

**General** | Links | Notes


Type: ----choice----  
 Due Date: ----choice----  
 Description:   
 Location A:   
 Location B:

Time Allocated: 0  
 Due Time: 10:05

Link  
 Break Link  
 Install  
 Remove

OK Cancel Reset Apply Previous

Figure 278 - Add/Edit Work Order Task dialog

5. In the Description box, type a description of the task.
6. The Location field is disabled for Links/Break Links as the system inserts it automatically.
7. In the Assigned to field click the  button to view the list of technicians or users. This list is created in Permissions in the Setting module. Select the name of the user who is to perform the task.
8. Change the Due Date and Time (optional).
9. Click **OK** to add the task to the Work Order task list.

**Add/Edit Work Order Task -- Webpage Dialog**

**Task**

**General** | Links | Notes

Type: ----choice---- Time Allocated: 0 Status: Created Assigned To: ----choice----

Due Date: 09/07/2009 Due Time: 10:05

Description:

Location A:  Location B:

Start Date: 00/00/0000 Start Time: 00:00

Date Comp.: 00/00/0000 Time Comp.: 00:00

Time Elapsed:

☐ Completed as Requested ☐ Not Completed. See Notes

OK Cancel Reset Apply Previous Next

Figure 279 - Adding a Link/Break Link Task to a Work Order



## Working in the Links Worksheet

The devices that are to be linked are selected and dragged and dropped into the Links Worksheet. The ports that are to be linked are aligned and selected.

**Note:**

*As the procedures to either create or break links are almost identical, the following instructions will refer only to creating links.*

**> To select and bring the devices into the Links Worksheet**

1. Click the Links Tab in the Task dialog. The Link Worksheet opens
2. To ensure that the ports face the correct way for linking, it is best to enable the Auto Flip checkbox. The Auto Flip feature can be disabled when required (optional). To flip the ports manually see *Edit Link* Chapter.
3. Check the Tooltip checkbox for Tooltips (optional).

**Tip:**

*Move the Worksheet to the bottom and slightly to the right of the screen to view the location tree.*

4. Click the Location Tab in the Work Order Pane.
5. Locate and select the device to be linked.

**Tip:**

*Multiple selections can be made. <Alt> key for consecutive selection and <Ctrl> key for a non-consecutive selection.*

6. Drag and drop the device/s into the worksheet. (For more detailed instructions see Edit Link Chapter).
7. If specific ports in a device are to be linked, then locate them in the Ports tab found in the Info Pane. (Multiple selections can be made).
8. Locate and select the port/s to be linked.
9. Drag and drop the port/s into the Links Worksheet into the correct column.



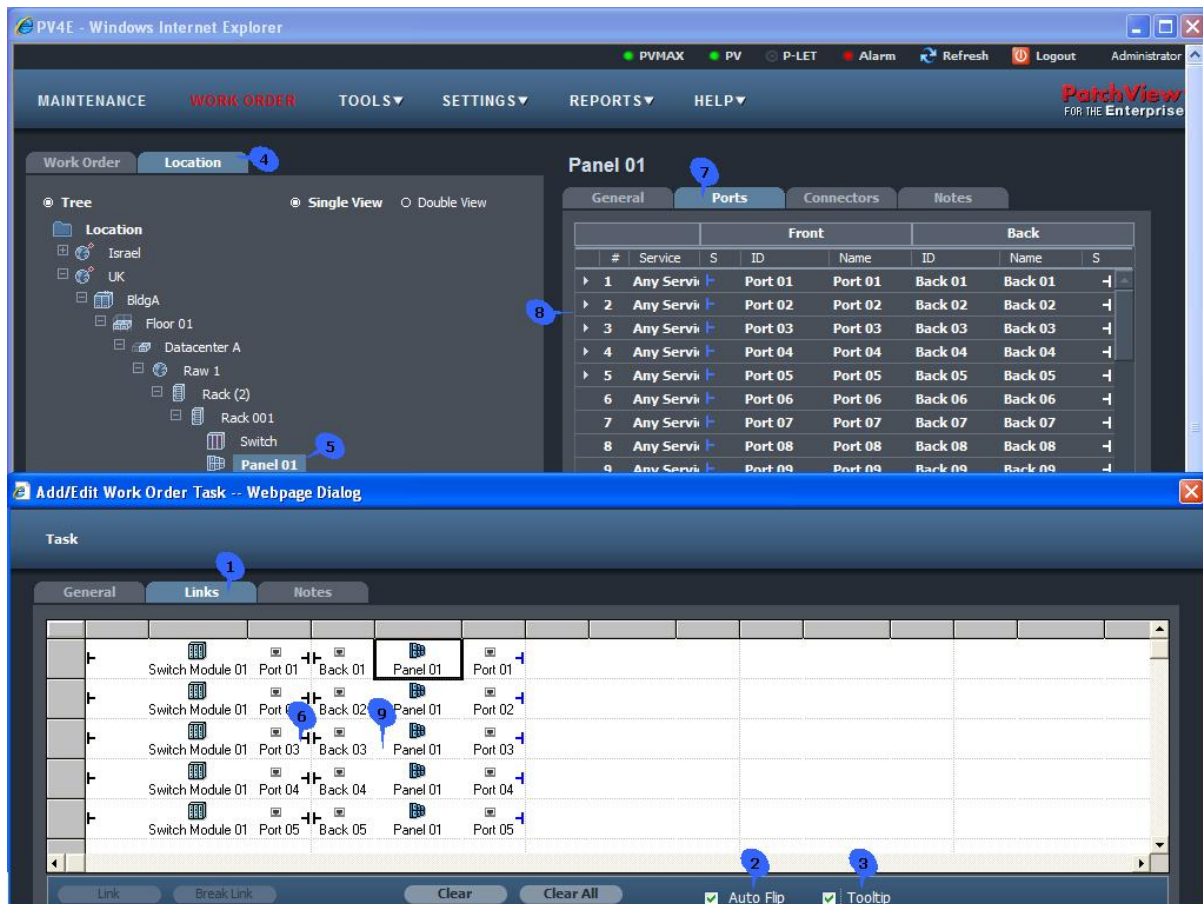






Figure 280 - Selecting devices in the Links Worksheet

#### > To create links in the worksheet

1. Select the ports that are to be linked.
2. Click on the Link (or the Break Link if required) button.  
The symbols change from  to  in the case of creating links and  to  in the case of breaking a link.
3. Click the Apply button to save the instructions on the database and continue working in the worksheet.
4. Click the **OK** button to save and close the worksheet.  
The status of the task is now created and the links will be marked as reserved or pending. See the table in Viewing a Link for the various types of symbols.

#### **Note:**

*The status of the new task will be created.*

## Reserving Devices for Link Tasks

If you know that you want to use a device or devices in a planned link, you can reserve the items to prevent them being used by someone else. Create a new task and set up the link according to your requirements but don't send it to the PatchView scanners. An "R" appears as the link symbol of the connected Reserved items. The items now cannot be used in another link until you either carry out the link or cancel it.

**Note:**

*Inventory items can only be reserved for link and break link tasks.*

## Adding Additional Tasks to the Work Order

Besides Links and Break Links, other tasks can be assigned to the technician. These categories of tasks can be to Install, Remove, Locate and Change either software or hardware. These are assigned to a technician or technician.

> **To add an additional task to a Work Order**

1. In the Work Order Pane select the Work Order that the tasks are to be assigned to.
2. Click the New Task button to open the Work Order task Worksheet.
3. The Add/Edit Work Order Task dialog opens.

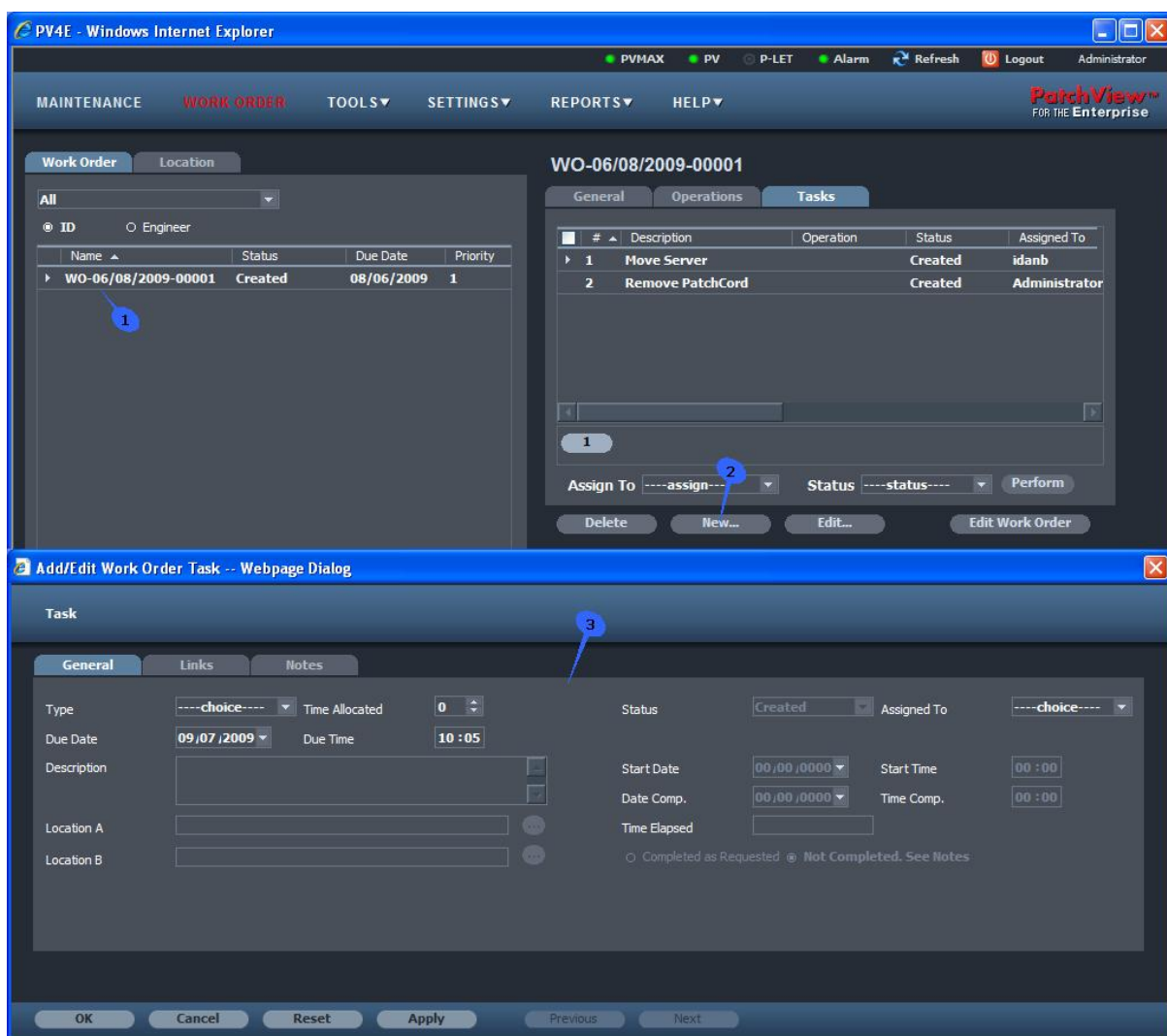


Figure 281 - Adding Another Task to a Work Order

4. Click on the  next to the Type field and select the type of task required.

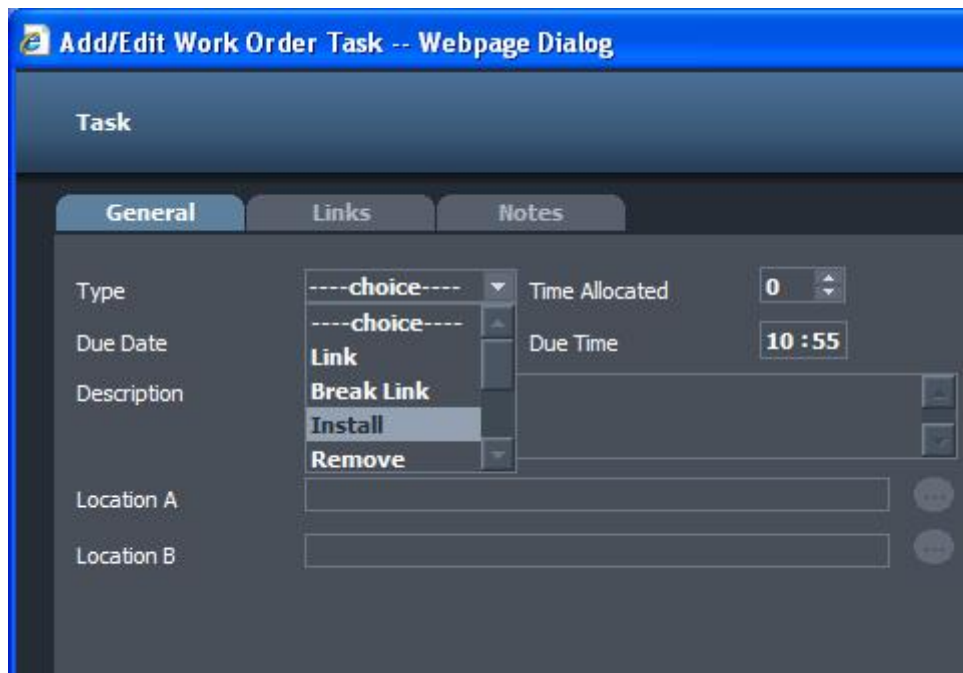



Figure 282 - Add/Edit Work Order Task dialog

5. In the Description box, type a description of the task.
6. Select the Location where the task is to be performed. Click the  to open the location tree
7. Select the location and click the OK button to return to the Task dialog.
8. If a task is performed at more than one location, select the second location in Location B.

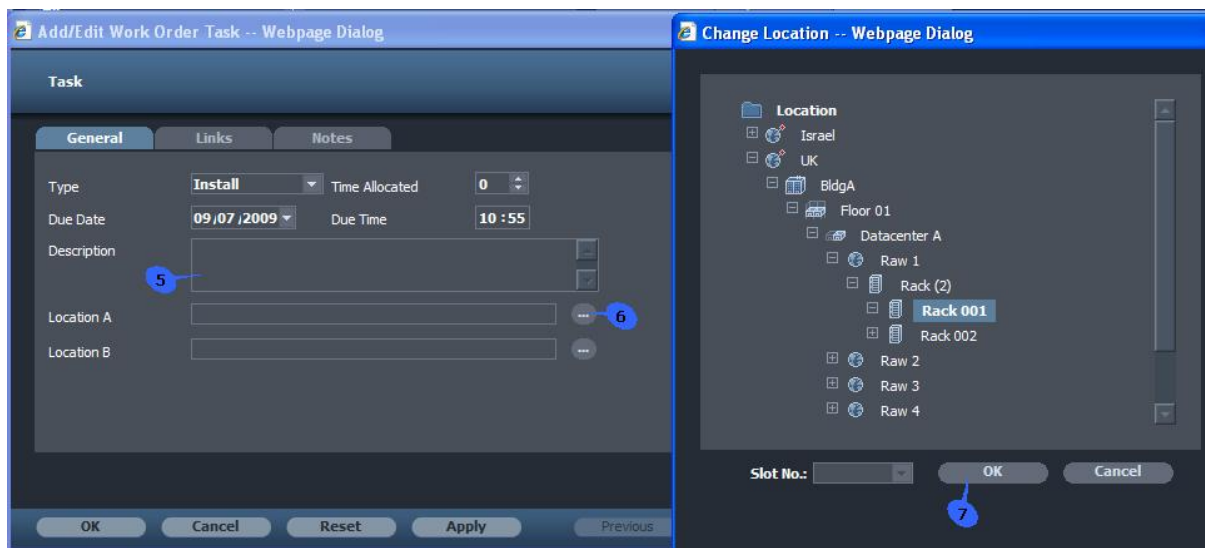



Figure 283 - Adding Another Task to a Work Order

9. In the Assigned to field click the  button to view the list of technicians or users. This list is created in Permissions in the Setting module. Select the name of the user who is to perform the task.
10. Change the Due Date and Time (optional).
11. Click **OK** to add the task to the Work Order task list.

**Add/Edit Work Order Task -- Webpage Dialog**

**Task**

**General** | Links | Notes

Type: **Install** | Time Allocated: **0** | Status: **Created** | Assigned To: **Administrator**

Due Date: **09/07/2009** | Due Time: **10:55**

Description: [Text Area]

Location A: **\\UK\\BldgA\\Floor 01\\Datacenter A\\Raw 1\\Rack 001**

Location B: [Text Field]

Start Date: **00/00/0000** | Start Time: **00:00**

Date Comp.: **00/00/0000** | Time Comp.: **00:00**

Time Elapsed: [Text Field]

☐ Completed as Requested ☒ Not Completed. See Notes

**OK** | Cancel | Reset | Apply | Previous | Next

Figure 284 - Adding Another Task to a Work Order

## Editing a Task

### > To edit a task

1. Open the Work Order Module.
2. Select the Work Order.
3. Select the task.
4. Click the New Task button.  
The Add/Edit Work Order task window opens.

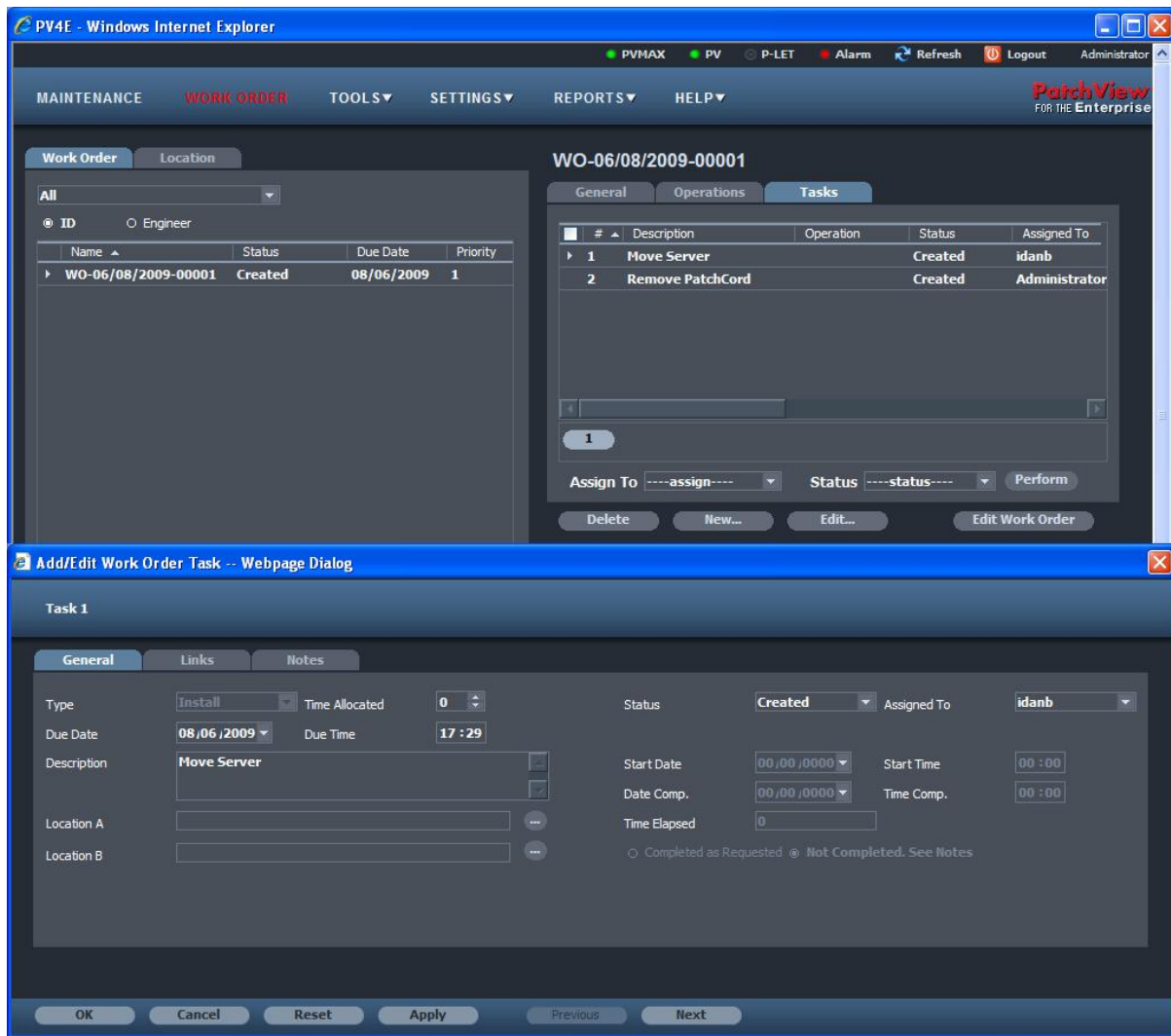



Figure 285 - Editing a Task

5. Make any changes necessary, such as changing the assigned Engineer or add a description.
6. If the task is a link task and you want to view the link, click the link tab.
7. Click the **OK** button to continue.

## Viewing a Link

The link status of a device can be viewed in a many locations in the PV4E application. These links are displayed in a graphical representation and can be accessed either through the Maintenance module or the Work Order Module.

### > To view a link in the Work Order Module

1. Open the Work Order Module.
2. Select the Work Order.
3. Select the task and right click on the  indicator and click on the New Link option.
4. The View Link dialog opens.

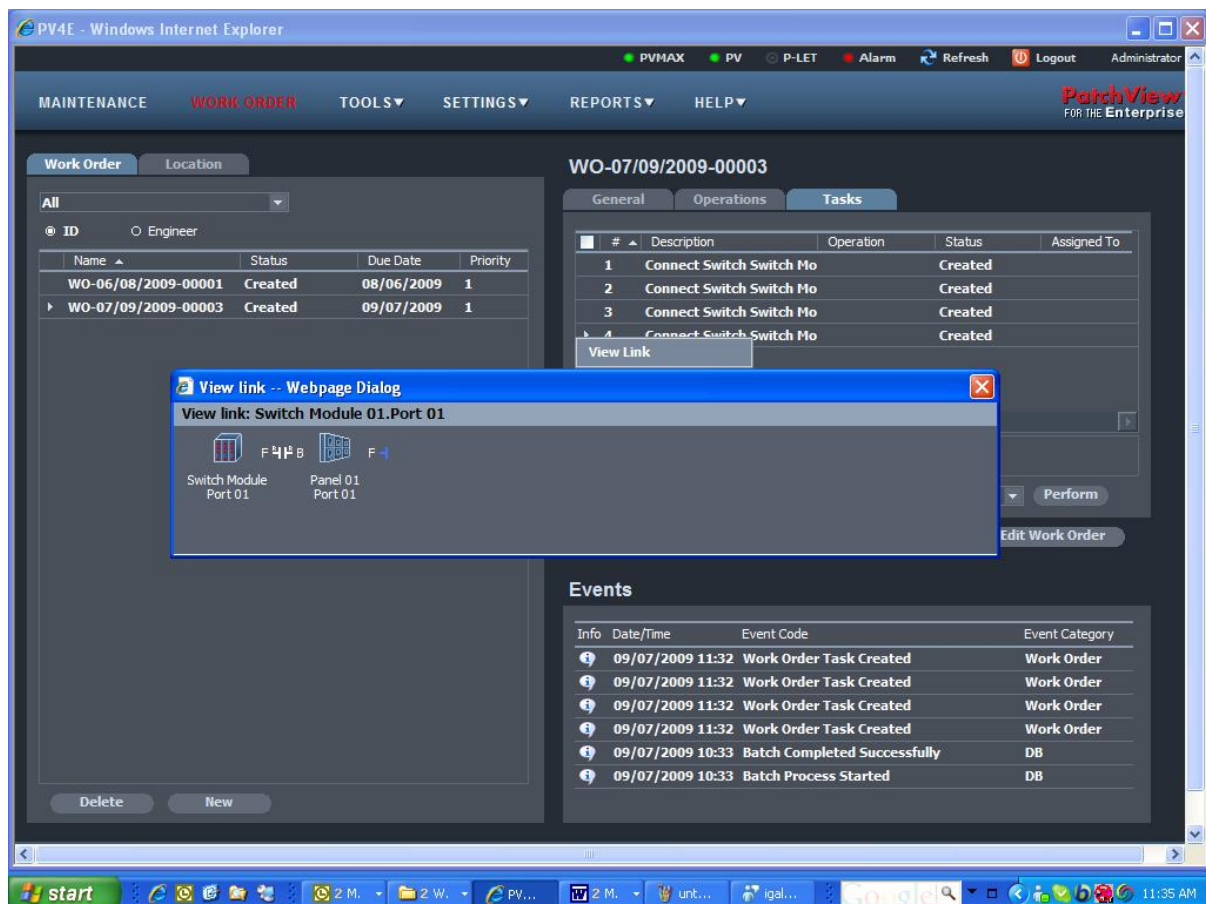
















Figure 286 - Viewing a Link

**Note:**

The status of the Link shows an **R**. Refer to the following table for all the symbols and their meanings.

Symbol	Color	Indicates...
— —	Black	An existing static (off-line) link.
⌞	Black	A reserved static (off-line) link in a work order. It is reserved and cannot be used in another link task.
... ..	Black	A request for a new static (off-line) link prior to implementation.
⌞—	Black	An existing split link.
⌞	Black	A static (off-line) port
⌞⌞	Black	A static (off-line) port reserved in a work order.
⌞⌞⌞	Black	A request to break a static (off-line) link prior to implementation.
<b>R</b>	Black	The item has a reserved status created in a work order.



Symbol	Color	Indicates...
	Blue	An existing dynamic (on-line) link.
	Blue	A reserved dynamic (on-line) in a work order. it is reserved and cannot be used in another link task.
	Blue	A pending dynamic (on-line) in the scanner.
	Blue	A request for a new dynamic (on-line) link prior to implementation.
	Blue	A pending dynamic (on-line) link in the scanner. it is reserved and cannot be used in another link task.
	Blue	A dynamic (on-line) port.
	Blue	A dynamic (on-line) port reserved in a work order.
	Blue	A pending dynamic (on-line) port in the scanner.
	Blue	A request to break a dynamic (on-line) link prior to implementation.
	Blue	A pending dynamic (on-line) link in the scanner. it is reserved and cannot be used in another link task.
	Red	The item is connected in an untraceable connection.
	Green	The item has a reserved status created in a work order. This symbol only appears in View Link.
	Blue	The link is a secure link.
	Red	A break in a secure link.

## Canceling and/or Deleting a Task

A Link task can only be cancelled if it has not been sent to the scanner. If it has been sent to the scanner see *Edit Link* Chapter for canceling a link.

### > To cancel a task

1. Open the Work Order Module.
2. Select the Work Order.  
The Tasks tab of the selected Work Order opens in the Information Pane.
3. Select the task or tasks. To select all the tasks, check the box in the upper left corner of the Tasks tab, and click OK on the confirmation screen.

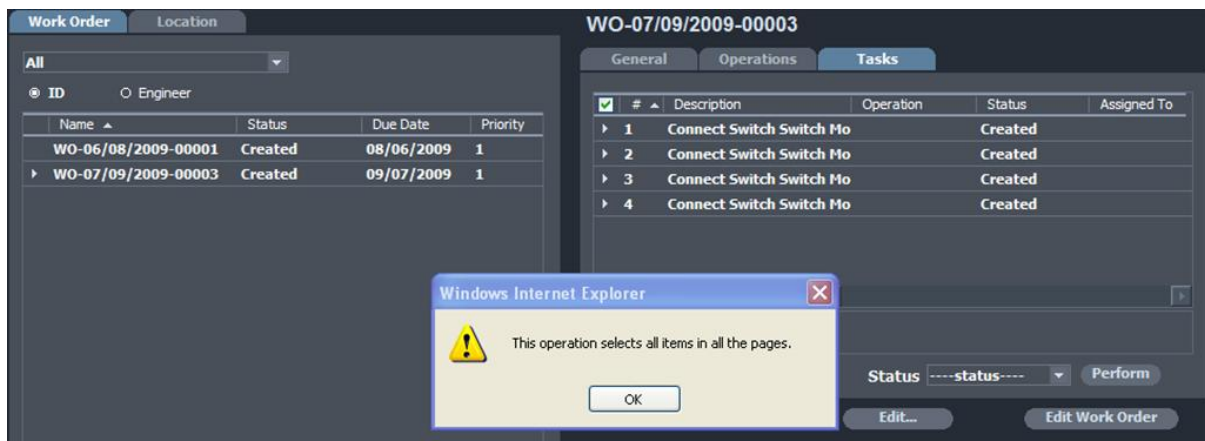


Figure 287 - Selecting all tasks

4. Select cancelled from the Status field.

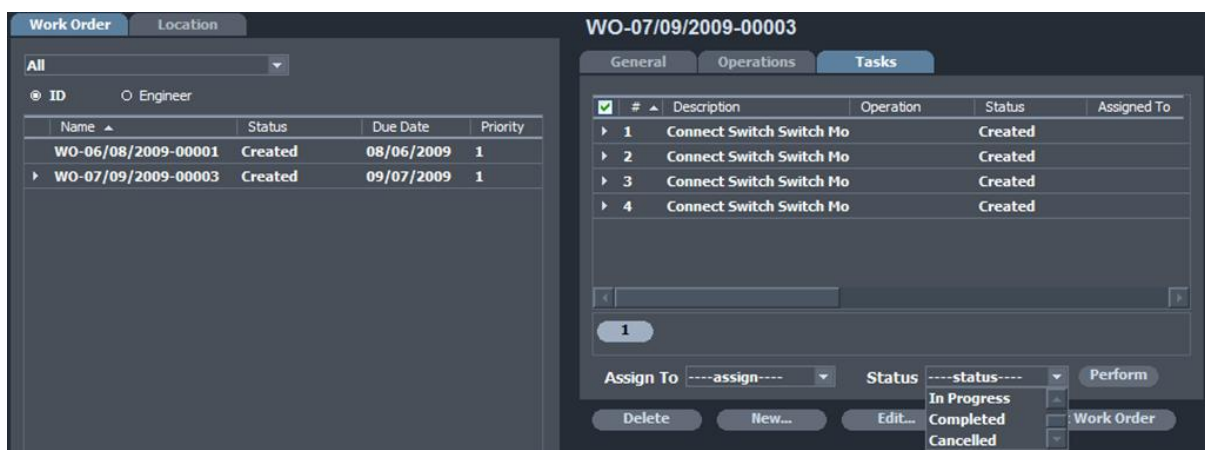


Figure 288 - Canceling a task

### Note:

*All the individual tasks need to be changed to Cancel before for the status in the Work Order changes to Canceled.*

## Carrying out a Work Order

The processes involved in carrying out a Work Order, once it has been created, are as follows:

1. The technician selects and changes the status.



2. The Control Pad is activated at the actual Panels.
3. The technician makes the new links or breaks links according to the LEDs on the panel.
4. The database is updated.
5. The System Manager checks the task and closes. See Closing a Work Order.


When a Work Order is carried out, each task is has its own status.

You can close the Work Order only after all tasks have been completed.

There are six different statuses of Tasks and Work Orders. These are:

Status	In Work Order Means...	In Task Means...
Created	It has been created but no work has been carried out. At this stage it can be cancelled.	It has been created but no work has been carried out. At this stage it can be cancelled.
In progress	Work has begun on one or more of the tasks	Work has begun on the task. This is applicable to additional tasks and not link tasks
Send to Scanner	Does not show on the Work Order	Links have been sent to the scanner.
Completed	The tasks have been completed.	For Link tasks this changes automatically when the links have been carried out at the scanner.  Status needs to be changed for additional tasks.
Cancelled	The Work order has been cancelled	The task/s were cancelled
Closed	The Work order has been checked and approved by the manager who has closed it.	Does not show in the tasks

## Changing the Status of a Link Task

1. Select the Work Order in the Work Order Module.
2. Select the task or tasks. To select all the tasks, check the box in the upper left corner of the Tasks tab, and click OK on the confirmation screen.
3. Click the  next to the choice field to open the drop-down menu and select 'Send to Scanner'.

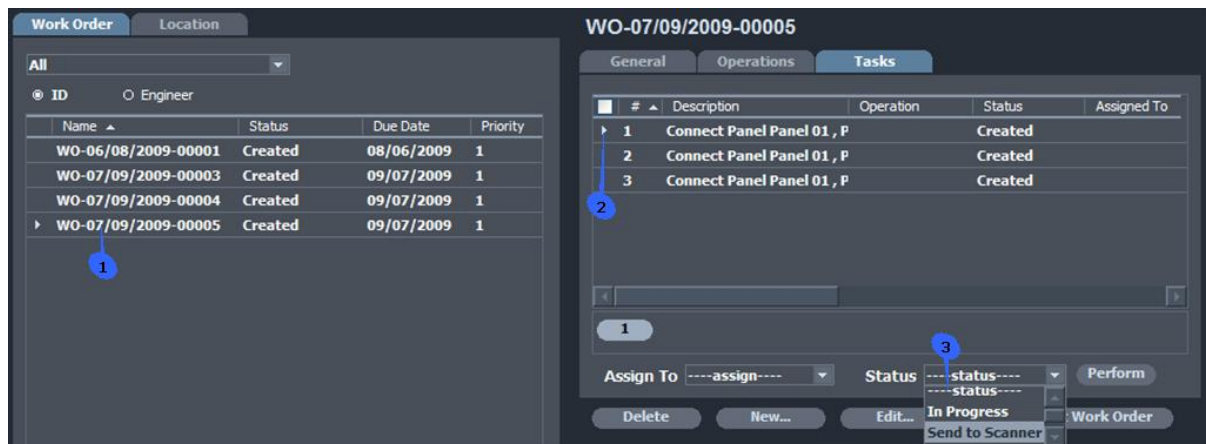


Figure 289 - Changing the Status of a Link

4. The Status of that task changes to Send to Scanner.
5. Click the Perform button to send the information to the scanner.

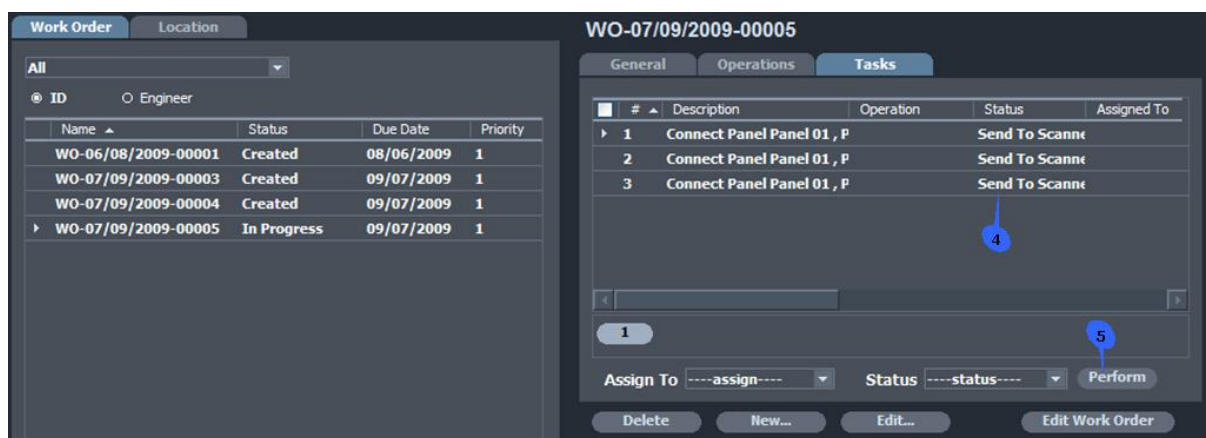


Figure 290 - Changing the Status of a Link

## The Control Pad

After the Perform button has been clicked the information is sent to the scanner.

The Control Pad, which is connected to the scanner of that site, indicates that a task has been sent to the scanners – now do the following:

1. The Reconfig. On/Pending LED blinks red.
2. Simultaneously press the control buttons A and B to activate the automatic scan.

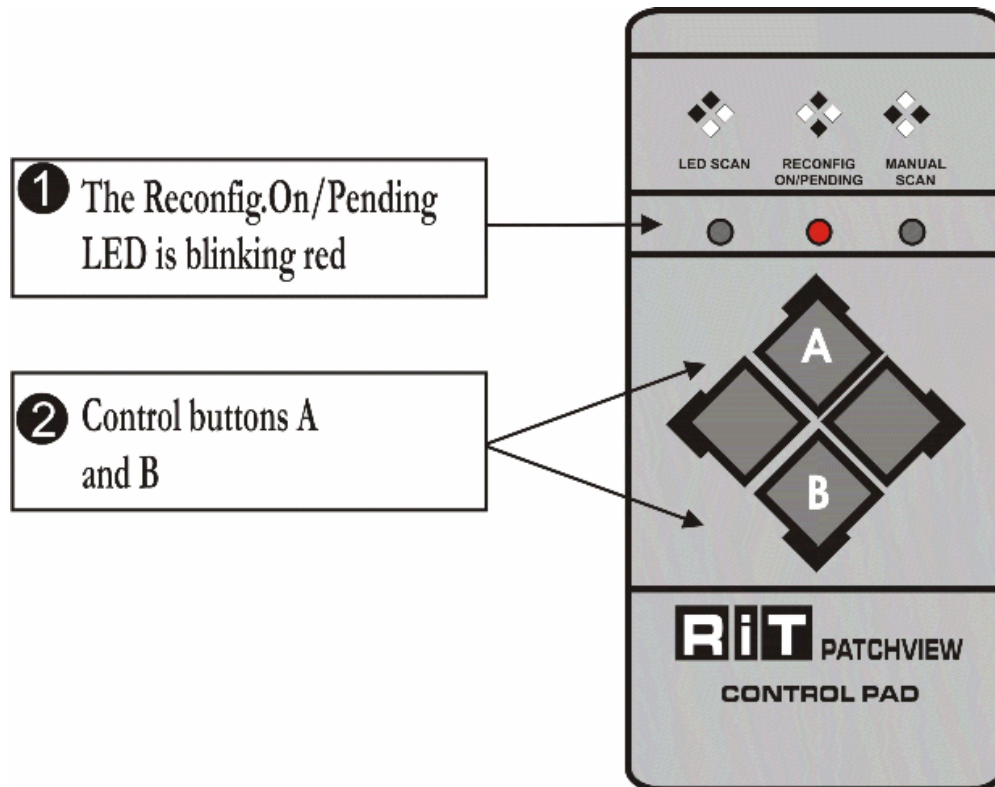
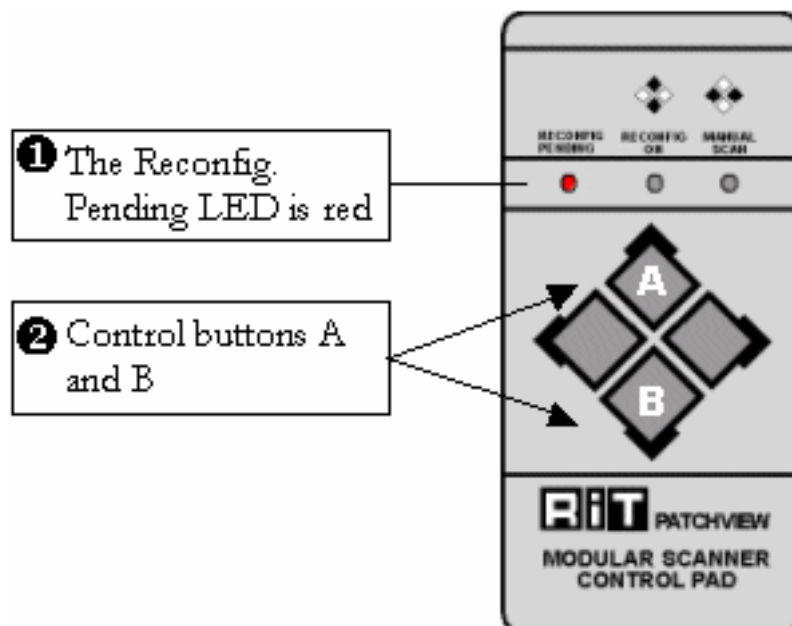


Figure 291 - Activating the Automatic Scan



3. The Reconfig On/Pending LED changes to red.



*Figure 292 - Control Pad*

4. The LEDs on the Panels start to indicate the order of work to be carried out for this task.

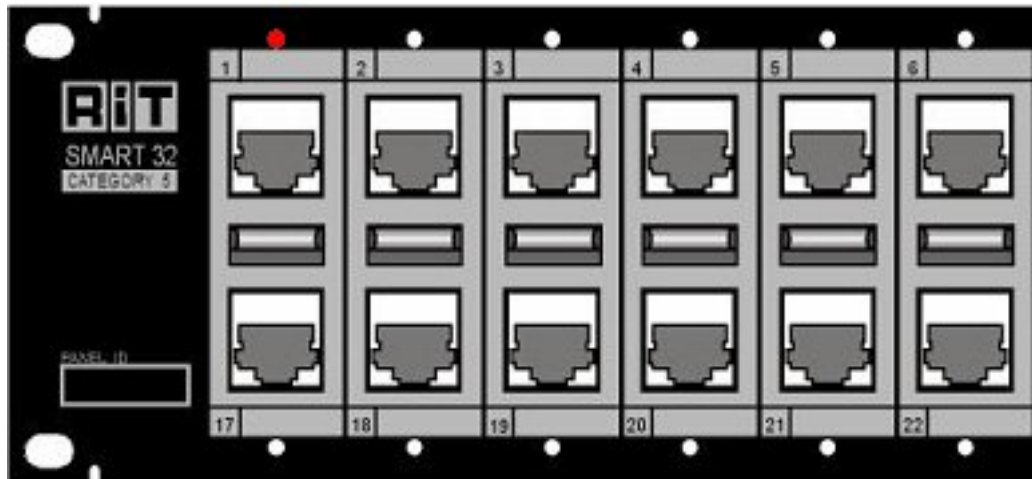


Figure 293 - Panel

**Note:**

The LED will either flash to show which link is to be broken (cable to be disconnected) or remain lit to show which link is to be created.

**Note:**

If you are not immediately performing the task, simultaneously press the control buttons A and B to return the status to pending. The Reconfig. On/Pending LED blinks red again.

5. Either connect or disconnect the cable from the first port.
6. The LED of the second port will be lit. Either connect or disconnect the cable from this port.
7. The process will continue for all the links in that particular task.
8. When this is complete the scanner will send the notification to the Work Order.
9. The status of the task changes to complete.

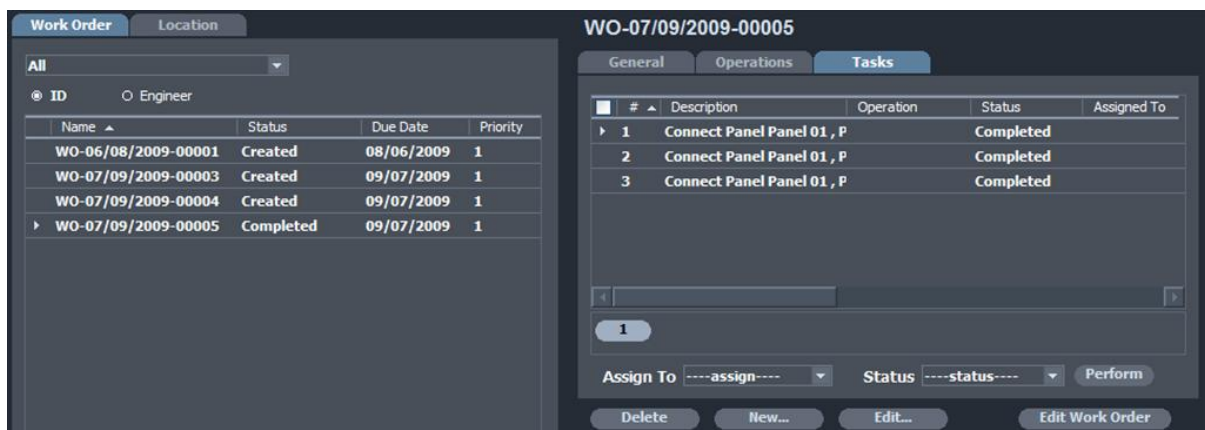


Figure 294 - Updated Task Status

## Closing a Work Order

A Work Order can be closed only when all tasks have been completed (or cancelled).

> **To close a Work Order**

1. Open the Work Order Module.
2. Select the Work Order.
3. Check all tasks to make sure that they have been properly completed.
4. Click **Edit Work Order** button to open the Work Order dialog.
5. Select the Close checkbox.
6. Under Closed, the name of the person who completed the Work Order and the date and time of completion automatically appears.
7. Click the **OK** button.

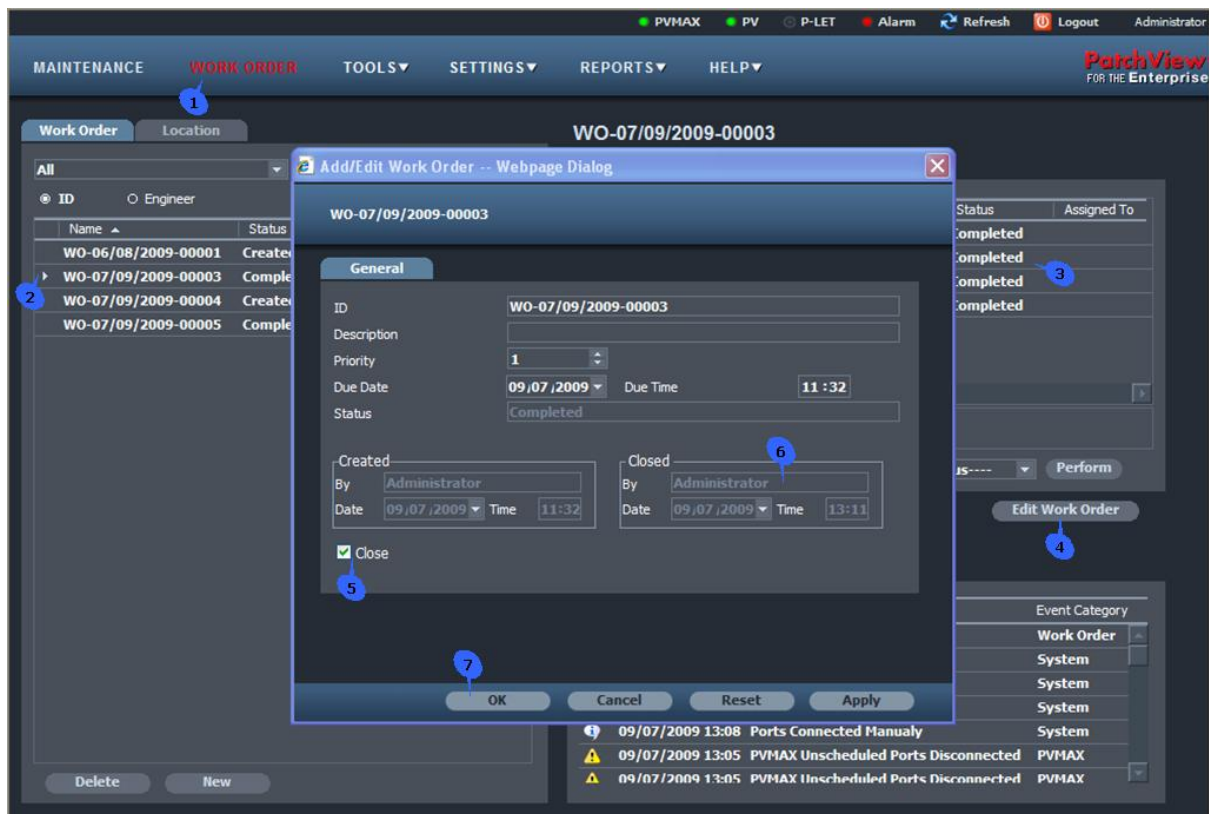


Figure 295 - Closing a Work Order

8. The Work Order status will now be closed.

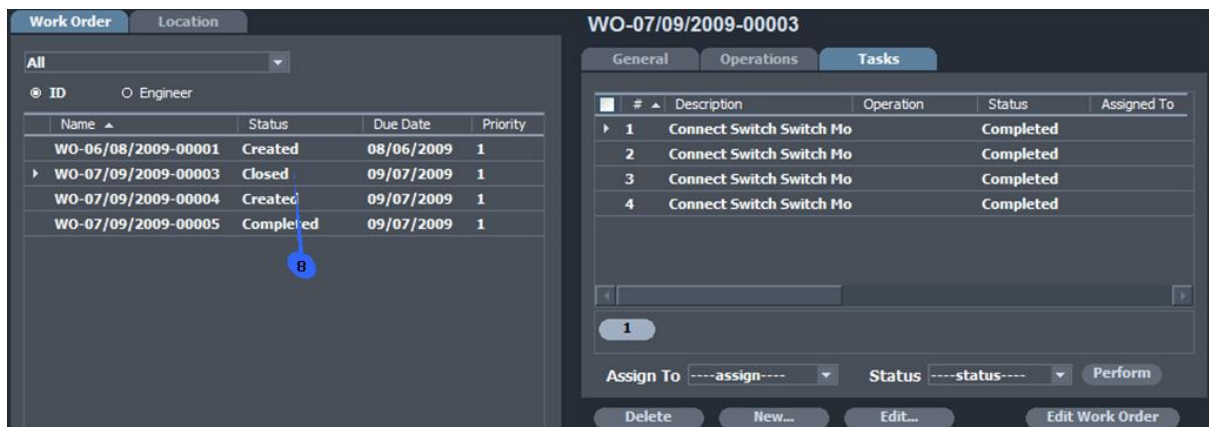


Figure 296 - Closed Work Order

## PVMAX Scheduled/Unscheduled Events

The Scheduled/Unscheduled Events has been developed to enable PV4E to differentiate between PVMAX events, and planned links that are performed through the Work Order/Edit Link, and arbitrary links performed in that field.

This feature is able to track the type of each connect/disconnect port event received from PVMAX.

In order to provide this functionality, the existing PVMAX events (PVMAX ports connected/disconnected) are replaced by the following new events (these events are supported by the event notification/event filtering mechanism, as with all events).

### Unscheduled Links

In the event of an arbitrary link connect/disconnect, that is performed in the field without a Work Order or a link command from PV4E, the following events will be generated and will carry a "Warning" event type:

- PVMAX unscheduled ports disconnected
- PVMAX unscheduled ports connected

#### Secure links

As secure link disconnection is by definition unscheduled, (it is disabled in the Edit link) the "Secure link disconnected by PV/PVMax".

### Scheduled Work Order Links

In the event of a link connection/disconnection that was performed as a result of a Work Order, the following events will be executed and carry an "Information" event type.

- PVMAX sched. ports disconnected WO
- PVMAX sched. ports connected WO

The following new event fields have been added to PV4E V5.0:

- A new hyperlink field for Work Order tasks
- An event type, labelled "Information" applies to both events

When the Work Order task hyperlink is clicked, the relevant Work Order task opens at the Links tab in read-only mode.



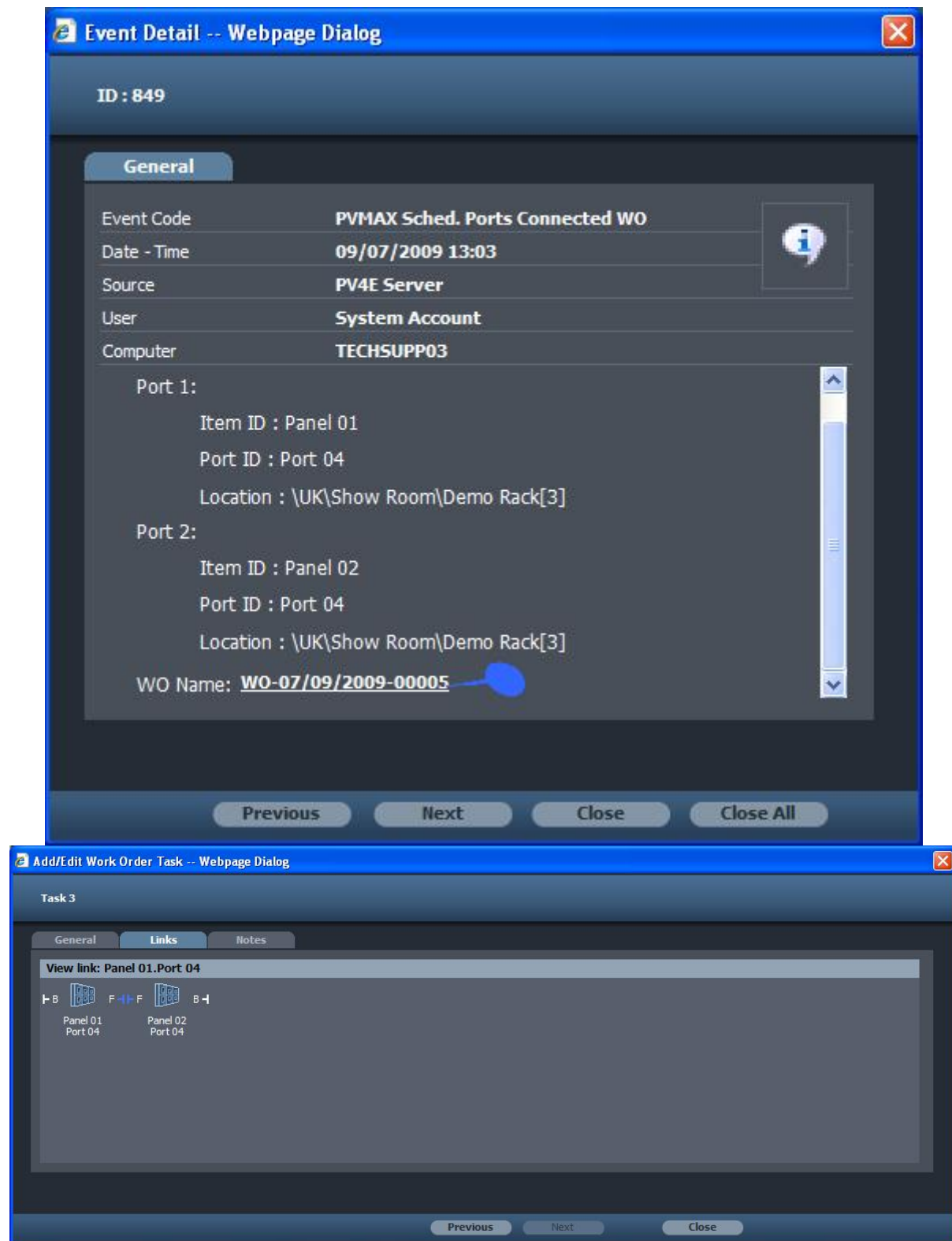


Figure 297 - Add/Edit Work Order Task dialog box

## Scheduled Edit Link Apply Links

In the event of a link connection/disconnection, that was performed as a result of the Apply function of the Edit link, the following events will be executed (and carry an "Information" event type):



- PVMAX sched. ports disconnected Edit link
- PVMAX sched. ports connected Edit link.

The following event fields have been added to PV4E V.5.0:

- A new User field displays the PV4E logged-in user performing an "Apply link" command
- An event type, labelled "Information", applies to both events

## Chapter 9: Discovery Module (P-LET)

### Discovery Module Overview

PatchView for the Enterprise features the Discovery Module. A technology (formally known as P-LET: Pro-active LAN Equipment Topology). The Discovery Module discovers all active devices in the network, their subnets and identifies the following device parameters:





- Host Name
- IP Address
- MAC Address
- System Service Type (With some exceptions).

Using these parameters, devices are added to the PV4E database and placed in the correct location. All connectivity changes of the devices are recognized.

The Discovery Module consists of a number of elements which divide the operation into simple tasks. These are:

- LAN Mapper
- AutoDetect
- LAN Server
- Unmanaged Devices
- Utilization module

The Discovery Module indicator button changes colors depending on the current task being performed. These are:

Button	Color	Means
The Discovery Module	Gray	 Not Active
	Blue	 LAN Mapper Active
	Yellow	 Unmanaged device process running
	Green	 LAN Server Active

### LAN Mapper

LAN Mapper is the first operation that needs to be run in order to start working with the Discovery Module. It discovers all active devices in the network and their subnets.

The LAN Mapper returns the MAC Addresses, IP Addresses, Host Names and System services. In some cases, some of the devices will be missing information, this due to connection issues like DNS and the device itself.

**Note:**

*In order for The Discovery Module to operate correctly, the LAN Mapper must be configured correctly.*

LAN Mapper is accessed from two places in PV4E. These are from:

- Settings > P-LET
- Maintenance > Topology Subnet

> **To open the LAN Mapper from the Settings Module**

1. From the *Settings* Module select **P-LET** from the drop-down menu.  
The LAN Mapper Screen opens.

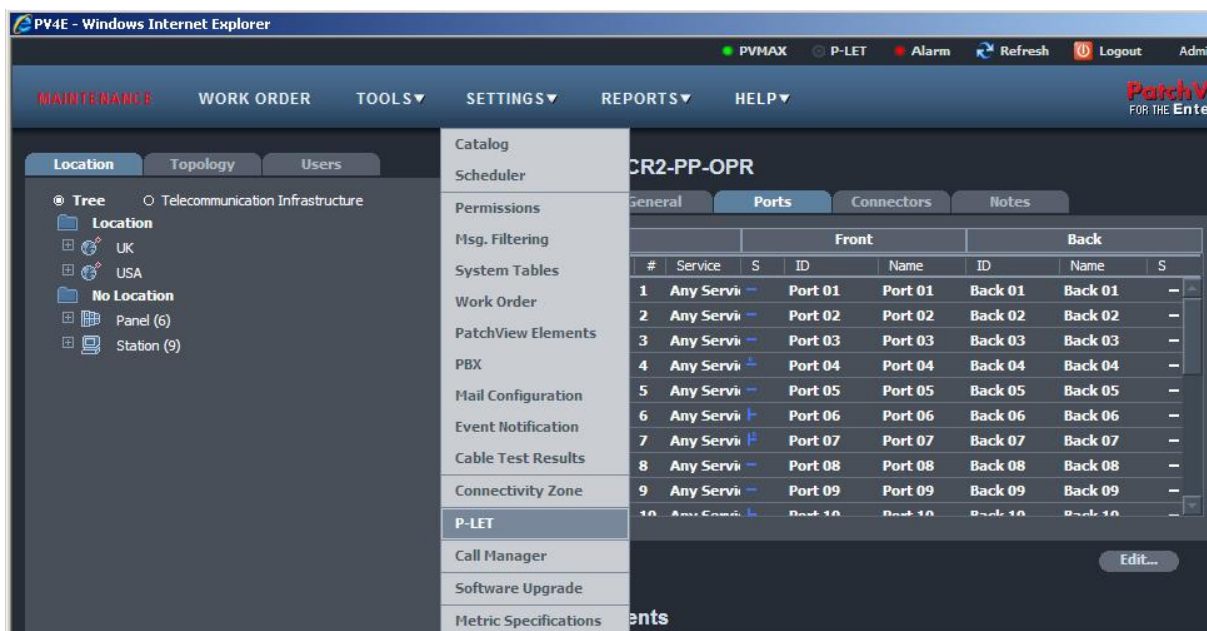



Figure 298 - LAN Mapper Screen

> **To open the LAN Mapper from the Maintenance Module**

1. Open the Maintenance Module.
2. Select the Topology tab.
3. Click the **Subnet** button.

The LAN Mapper Screen opens and displays general information on the configuration of the LAN Mapper

4. The Discovery Module Indicator button  will be blue when LAN Mapper is running.

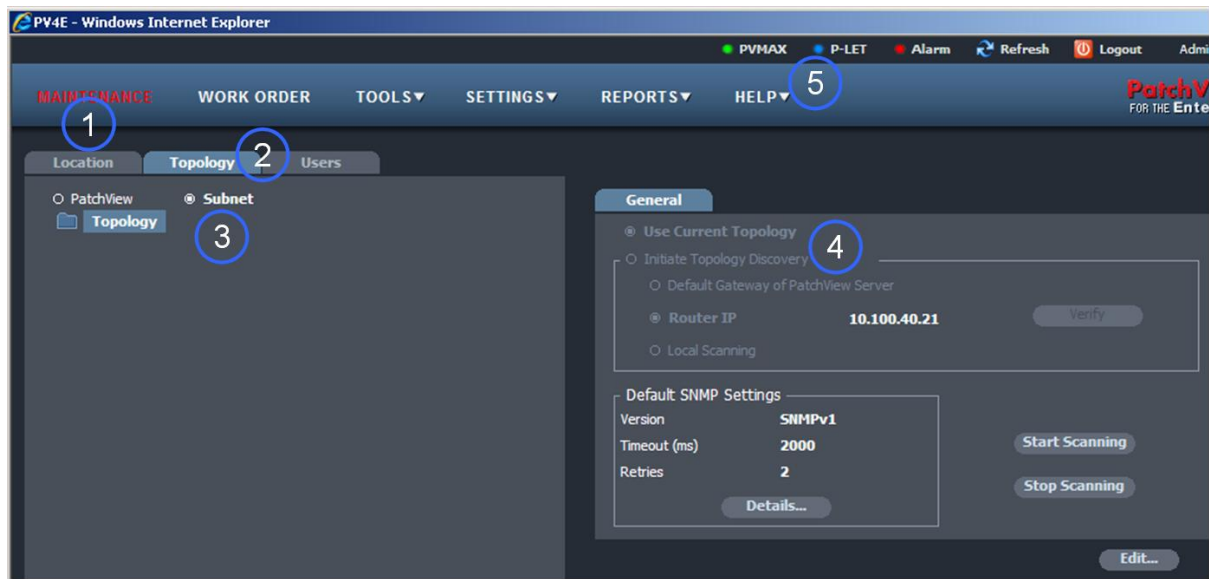


Figure 299 - Opening the LAN Mapper

To activate the LAN Mapper scan, the following settings need to be defined:

LAN Mapper Settings

Message Filtering

LAN Mapper Scheduler. See LAN Mapper Scheduler.

**Note:**

*Set the LAN Mapper Scheduler before continuing with LAN Mapper Settings.*

## LAN Mapper Settings

This is done so that the LAN Mapper can automatically scan the network to detect its entire structure, including devices.

These settings define the active Routers and Subnets in which the Discovery Module will detect the existing devices.

There are two options for the LAN Mapper Settings. These are either 'Use Current Topology' or 'Initiate Topology Discovery'. They are used as follows:

CONFIGURATION	EXPLANATION
Use Current Topology	This is used on a daily basis once the subnet topology is correct. (It is important to select this option after Initiate Topology Discovery has run)
Initiate Topology Discovery	Use this the first time or to overrides the existing subnet topology. (The existing subnet topology will be deleted)

### > To define the LAN Mapper Settings

This operation is performed when PV4E is installed for the first time or if you want to rediscover the Network Topology.

**Note:**

*This process will erase the old network topology.*

1. Open the LAN Mapper Screen. See *LAN Mapper Settings*.
2. Click **Edit**.  
The LAN Mapper Setting dialog opens.
3. Select the Initiate Topology Discovery button if the LAN Mapper is to be run for the first time or if you want to rediscover the network topology.

**Note:**

*Once the LAN Mapper is complete and has been run for the first time, it is important to select the 'Use Current Topology' option. If this is not done, the process will be carried out from the beginning overriding the previous discovery.*

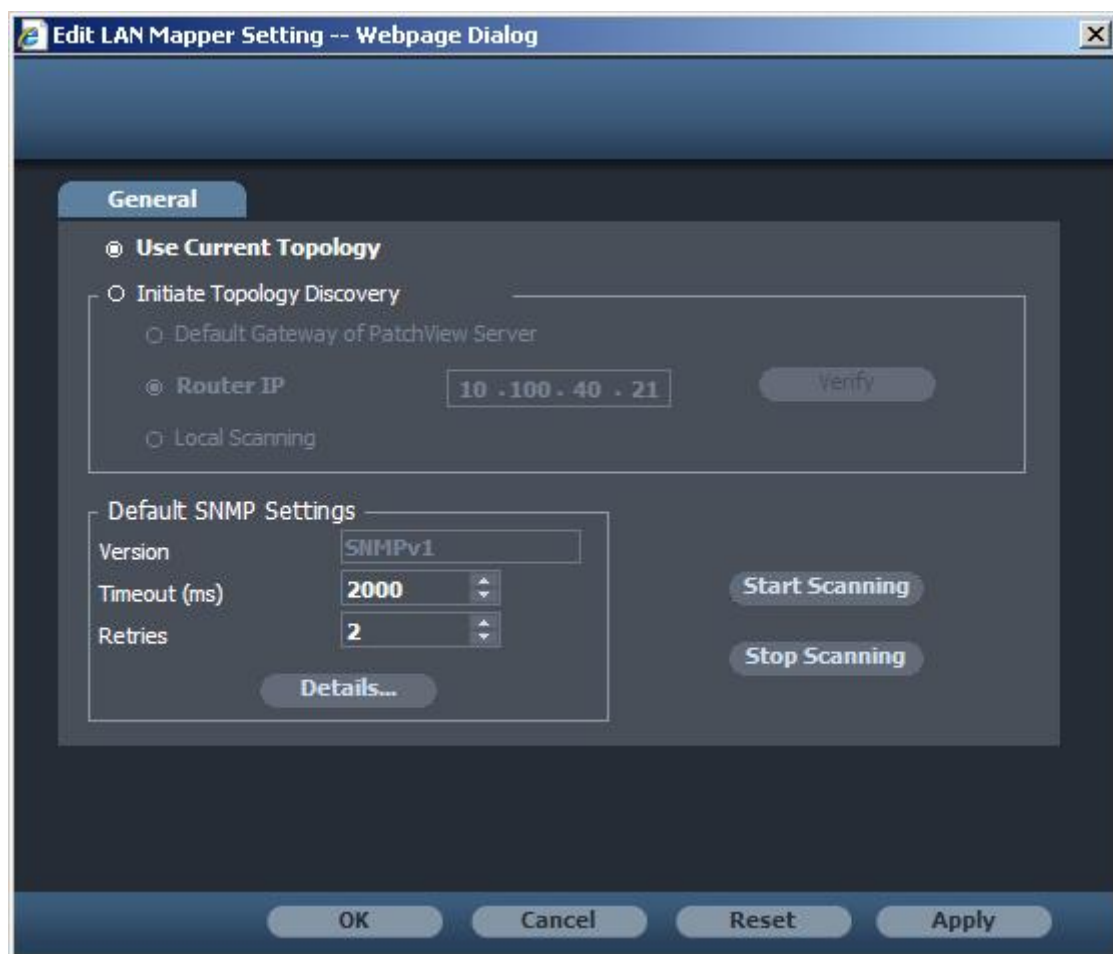


Figure 300 - Defining LAN Mapper Settings

4. Select one of the options to Initiate Topology Discovery according to the following table:

CONFIGURATION	EXPLANATION
Default Gateway of Patchview Server	Use the default gateway of the PV4E server as its starting point.  If you select the Default Gateway option the LAN Mapper will detect the default gateway IP address from the PV4E server.
Router IP	Use the Router with the specified IP address as its starting point.  If you select the Router IP option then you need to put in the specific IP address of that Router.
Local Scanning	Scan the PV4E server subnet only. (The LAN Mapper information will only be collected from this specific subnet.)

**Note:**

*Ensure that your PV4E server has a static IP address. (If this is not a static IP, contact your system administrator).*

- Obtain the default SNMP settings from the System Administrator.

SNMP SETTINGS	DEFAULT PARAMETER	EXPLANATION
Get Community	Public	The string used as the community name in SNMP Get and Get Next requests.
Timeout (mseconds)	2000	The number of milliseconds after which the LAN Mapper stops if no contact is made with the Router.
Retries	2	The number of times, within the timeout period, the system will attempt to receive an answer to a request from a Router, before reporting a communication error.

- Click **Verify**. This finds the particular device and determines if it is alive and the parameters are correct in order to perform the scan. If verification was successful a message will be given. If the particular device cannot be verified, the Discovery Module will not work.
- Click **OK** or **Apply**.
- The Manual LAN Mapper Scan can be run at this point (optional).

**Note!**

*Since a network discovery with multiple community strings has a substantial impact over the scanning duration, RiT suggests the following solutions:*

- Use a single SNMP community string as a system wide parameter.
- Each device with SNMP settings different than the default can be set separately by entering its own SNMP settings.



Figure 301 - Defining LAN Mapper Settings

**Note:**

*In order for IP Phones to be detected by the LAN Mapper, the Call Manager needs to be defined. See Defining the Call Manager.*


## LAN Mapper Manual Scan

The LAN Mapper scan can be activated manually for the first scan or it will scan according to the scheduler. Subsequent scanning will be done automatically according to the times set in the scheduler. See *LAN Mapper Scheduler*.

### > To start the Manual LAN Mapper Scan

1. Open the LAN Mapper from the Topology Tree by clicking on the Subnet button.
2. Click on the *Topology* folder.  
The General LAN Mapper window will open.

3. Click **Start Scanning**.

The Discovery Module indicator button changes to blue .

If necessary the Stop Scanning button can be selected to stop the scan.

Events will be recorded in the Events Log.

4. When standing on the indicator with the mouse arrow – a tool tip appears, supplying the current phase of the scan alongside with the percentage of progress.

The tooltip reports over then following phases:

- Subnet wake up (Without percentage indication)
- Routers scanning
- Device information retrieval
- Writing device information to the database

The following figure illustrates one of the tool tips



Figure 302 - LAN Mapper tool tips

## LAN Mapper Scheduler

The LAN Mapper Scheduler defines the dates and times for the running of the LAN Mapper scanning process. You can select the Start date and time of the run and how often the process is to be repeated.

**Note:**

*LAN Mapper will only detect devices that were recently active, therefore it is advisable to set it to run during business hours.*

**To set the LAN Mapper Scheduler**

1. From the Settings module select scheduler from the drop-down menu.
2. Select the LAN Mapper tab.  
The LAN Mapper Edit Scheduler window opens.
3. Click **Edit**.

**Note:**

*It is not recommended to run both LAN Mapper and LAN Server simultaneously.*



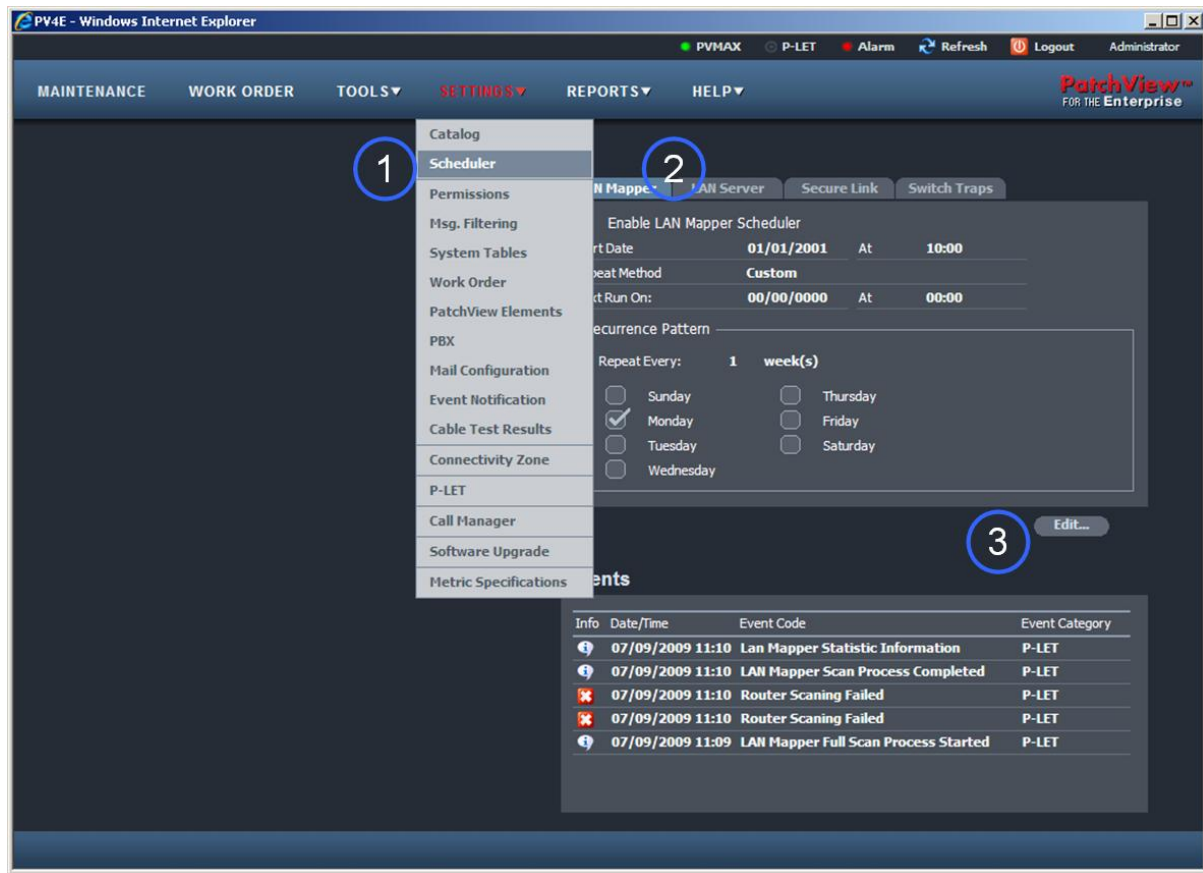


Figure 303 - Setting the LAN Mapper Scheduler

The Edit Scheduler dialog opens.

4. Check the Enable LAN Mapper Schedule checkbox to enable the Scheduler.
5. Select either Once or Custom from the Repeat Method field. See the following table:

If you want	Select...	Explanation
Once	Repeat method: Once	The LAN Mapper runs only once.
Customize	Repeat method: Custom	The LAN Mapper runs according to the set Recurrence pattern. You select the pattern by setting the weekly interval and the specific weekday for the run. For example the interval can be every 3 weeks on a Tuesday

6. Enter the Start Date and At fields by selecting from the dropdown lists. This defines the Start date and run time for the LAN Mapper.
7. For the Custom Method, select an option for the Repeat Every: field that defines how often you want the detection process to run.
8. Select which days you require the Scan to run.
9. The Next Run On: date will be calculated according to the day specified.

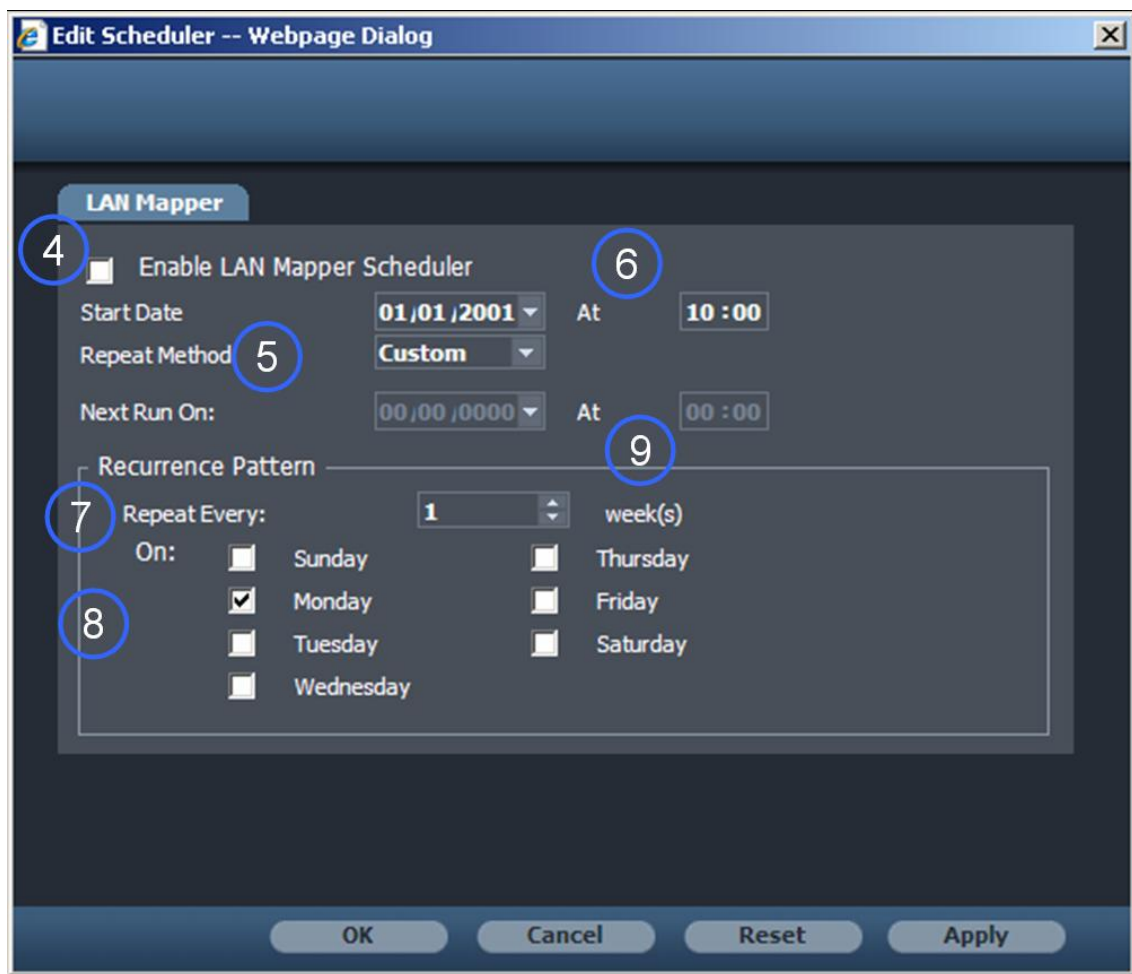


Figure 304 - Edit Scheduler dialog

10. If you selected the Repeat method as Once, the following Scheduler window appears, allowing you to insert only the start date.

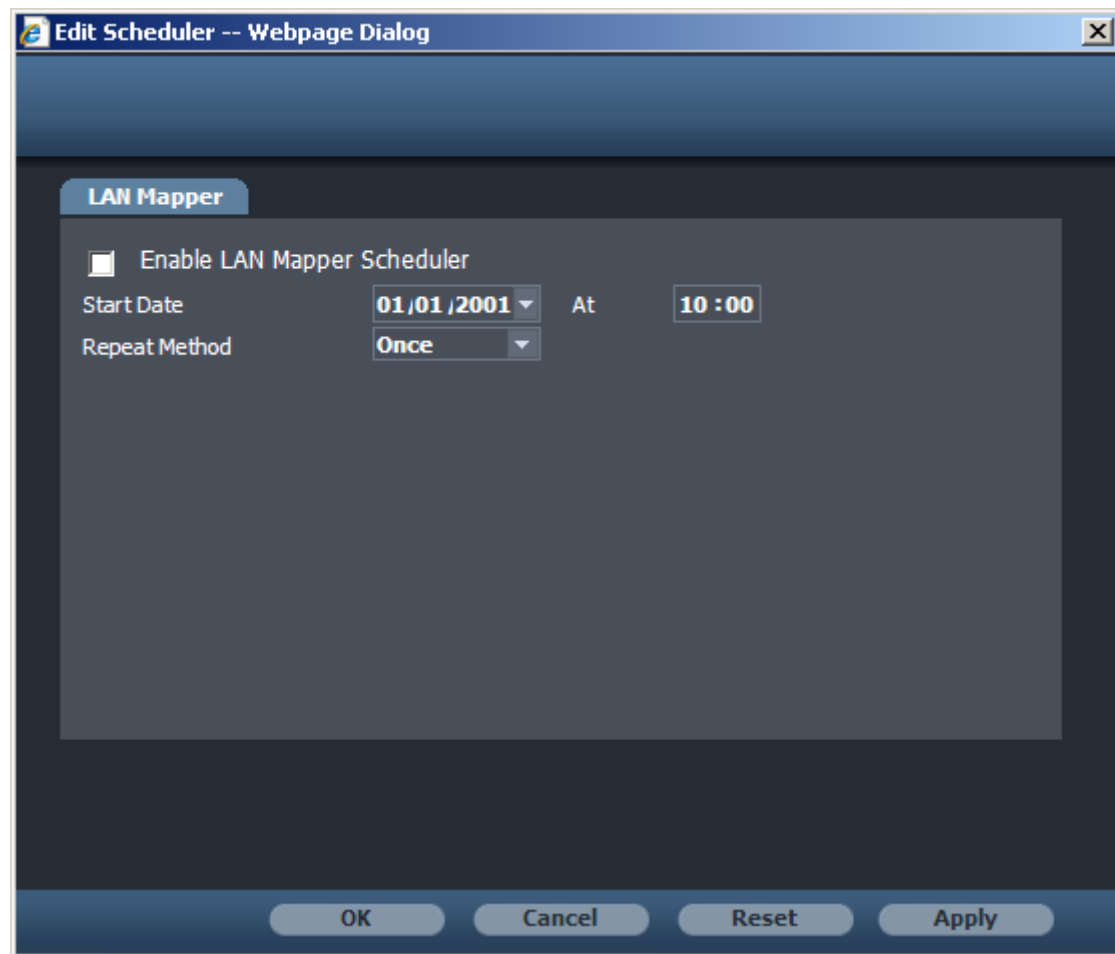


Figure 305 - Edit Scheduler dialog - Repeat Once

11. Click **Apply**. The Scheduler Settings are defined.
12. The LAN Mapper will run on the date scheduled.

## LAN Mapper Scheduled Scan

LAN Mapper will scan the network according to the scheduler. Once LAN Mapper scan is completed, it places each detected device under its own Subnet.

### **Note:**

*If the first LAN Mapper scan has been activated via the Scheduler, reset it now to 'Use Current Topology'.*

## Topology

### Viewing the Subnets

After the LAN Mapper has run either through the scheduler or manually, LAN Mapper places all the discovered subnets in the Topology Tree.

Some of the subnets will be marked with check marks and others with x's:

The checkmarks indicate that the subnet was accessible for scanning and was successfully scanned

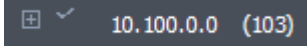
The x indicates that the Subnet is not accessible for scanning. Probable reasons could be:

No permit for the PV4E Server (IP Address) to access the subnet

The Subnet's router is not an SNMP agent


The SNMP Get Community name is different from the one that is specified in PV4E.

> **To View the Subnets**

1. View the Subnets in the Topology Tree.
2. All the Subnets will be displayed with either a checkmark or an X.
3. PV4E displays for each subnet which was successfully scanned the number of entities which are associated with it 
4. Expand the Subnets to view the detected devices on each Subnet.

## The Topology

> **To view the scanned devices**

5. In the Maintenance Module click on the **Topology** tab.
6. Select the Subnet Radio Button.
7. Select the Topology folder in the Topology tree.
8. Expand the Subnet by clicking on the + sign.
9. All the devices on this Subnet that were discovered by the LAN Mapper Scan will be displayed.
10. All devices that are not placed in the location tree, according to their actual physical location, will be indicated with an  icon.

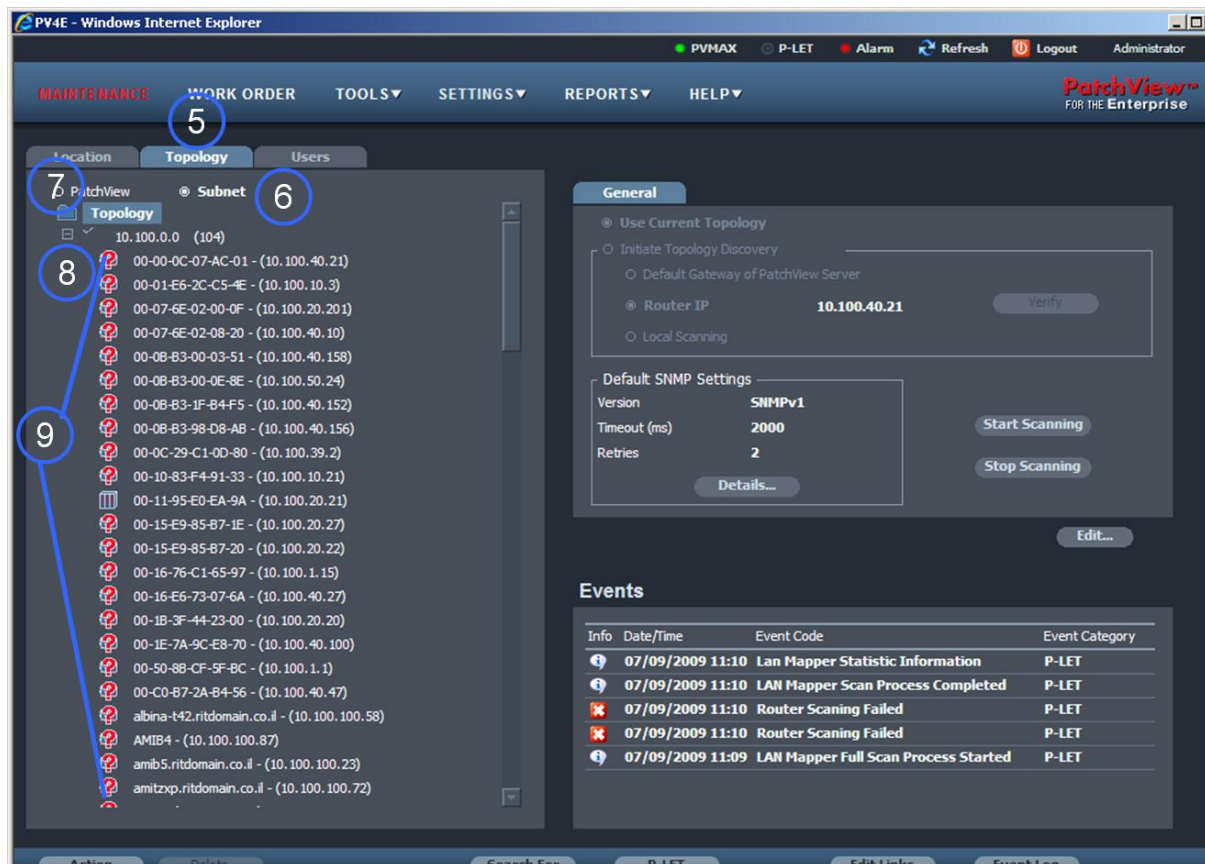


Figure 306 - Topology

## Adding a Subnet Manually

An individual Subnet can be added manually in the Topology Subnet section in maintenance.

### Note:

*Only one subnet can be added at a time. The process needs to be repeated for subsequent subnets that are added manually.*

### To add a Subnet Manually

1. Right click Topology and select **Add Subnet** from the drop-down menu.  
The Add/Edit Subnet dialog opens.
2. Check the Enable Subnet Discovery if you want the detection process to include detection of the subnet.
3. In the Network information section, fill in the ID field. This information is found in the topology tree.
4. In the Network information section, fill in the MASK field. (Obtain this from the IT manager.)

### Note:

*If Local Scan is selected, verify that the PV4E server is a member of the specific subnet that you would like to scan.*

5. Select the Default Type. This is the device type which is allocated to every device in case where the discovery module did not manage to resolve its type

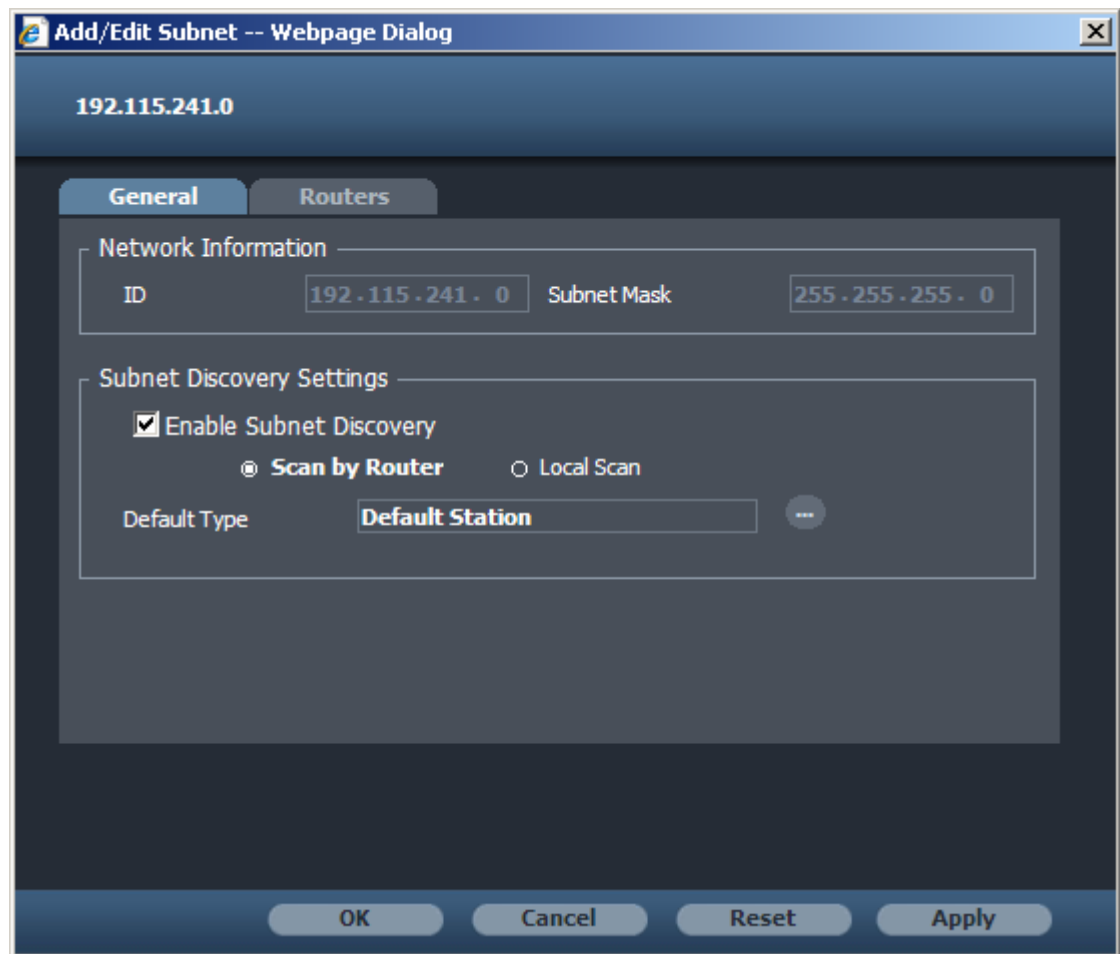


Figure 307 - Adding a Subnet Manually- General tab

6. Click the Routers tab
7. Specify the information for each router which is associated with this subnet. There is no limitation for the number of routers.
8. The *SNMP Settings* (like the Interface) appear automatically and relate to the Router SNMP settings. You can set different settings per router by clicking the Details button
9. Click Verify Routers to ensure that the information is correct and whether the Routers are available or not
10. Click **Apply**. The settings for the Network Topology are defined and the Routers appear in the Network Topology tree, each Router is identified by an IP Address.

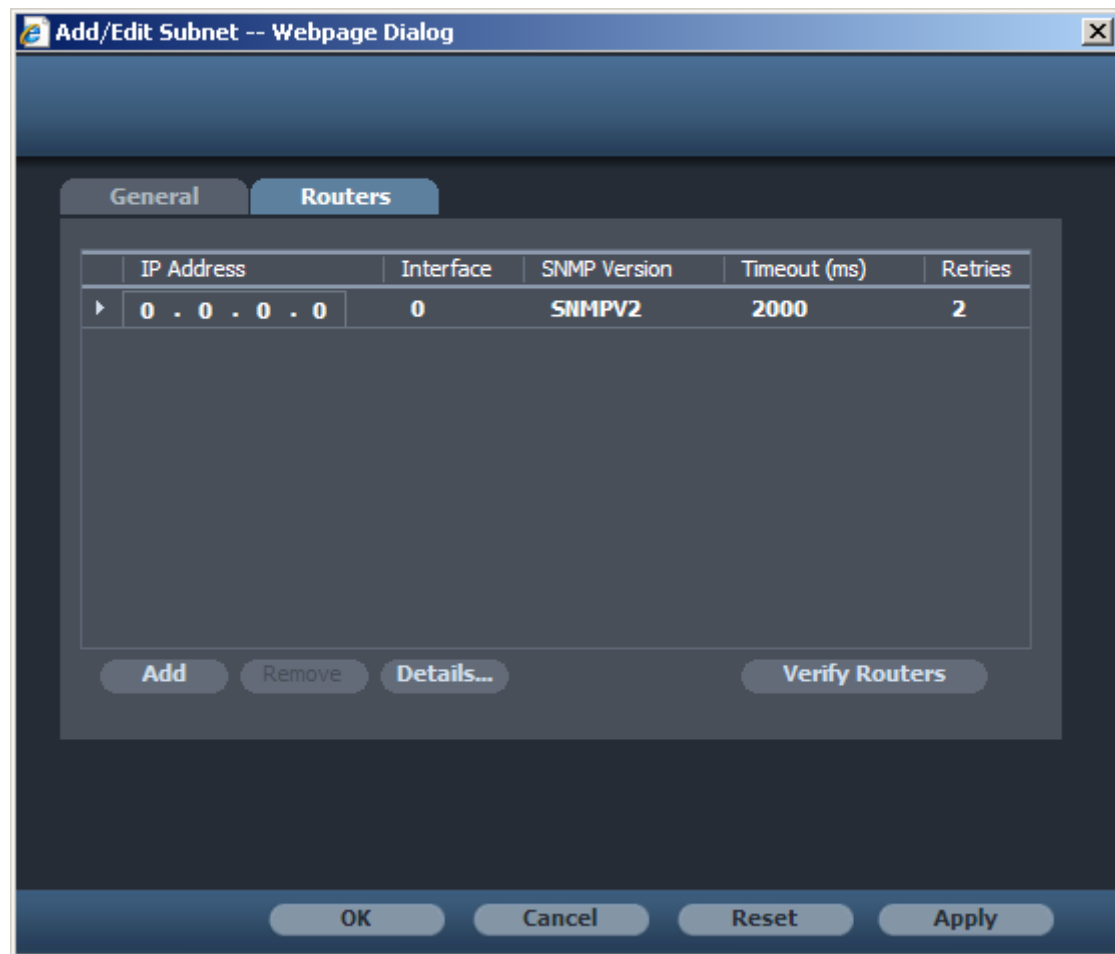


Figure 308 - Adding a Subnet Manually- Routers tab

## Scanning Selected Subnets Manually

The discovery module allows you to scan only selected subnet in a manual process.

### > To scan selected Subnets Manually

1. Select one or more subnets from the topology tree (Using the ctrl button)
2. Right click the subnets and select the Scan Subnet menu item
3. The discovery module will scan once the selected subnets

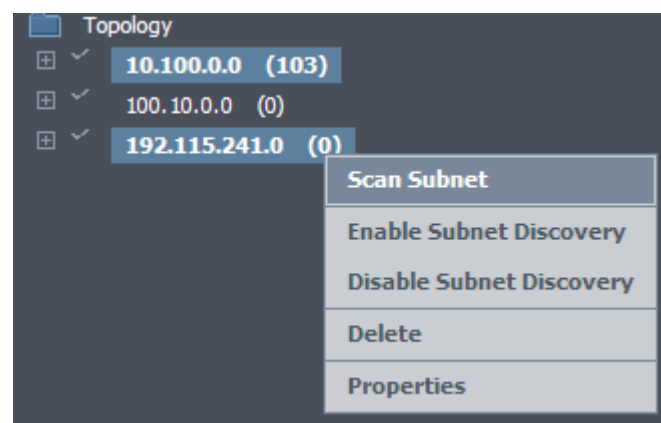


Figure 309 – Select subnets for manual scan

## Adding\Removing Selected Subnets from the scan

The discovery module allows you to exclude \include multiple subnets in the scanning process.

### To Add\Remove multiple Subnets from the scan

1. Select one or more subnets from the topology tree (Using the ctrl button)
2. Right click the subnets and select the Enable\Disable Subnet Discovery menu item

## Switch Traps

Switch traps provide real-time indications of any terminal equipment connections (link up) or disconnect (link down). A disconnection can be a regular disconnection or a failure in the physical communication link. The connection could be of an authorized or a non-authorized device in the network.

In addition to the scheduling activation of the Discovery Module operation, switch traps provide real-time updates on the connection activity of the terminal equipment. This means that activating the switch-trap feature on your equipment increases functionality without increasing the resource load on the system.

When a device's location is changed, PV4E updates its location in its inventory and sends out a trap describing the disconnection or reconnection of the device. If a new device is detected that is part of a full link, this new device is automatically added to the Inventory.

The tasks you need to perform to activate switch traps are:

1. Activate the switch traps (link up and link down) feature on your network switch. Provide the switch with the IP address of the PV4E Server as the destination of the switch traps. Please refer to the switch's documentation for further details.
2. Activate the Discovery Module switch traps feature in PV4E.
3. Set the Discovery Module scheduler.
4. Set the switch trap properties for each switch. You need to configure the settings on each individual switch in the network. Refer to the manufacturer's documentation for details.

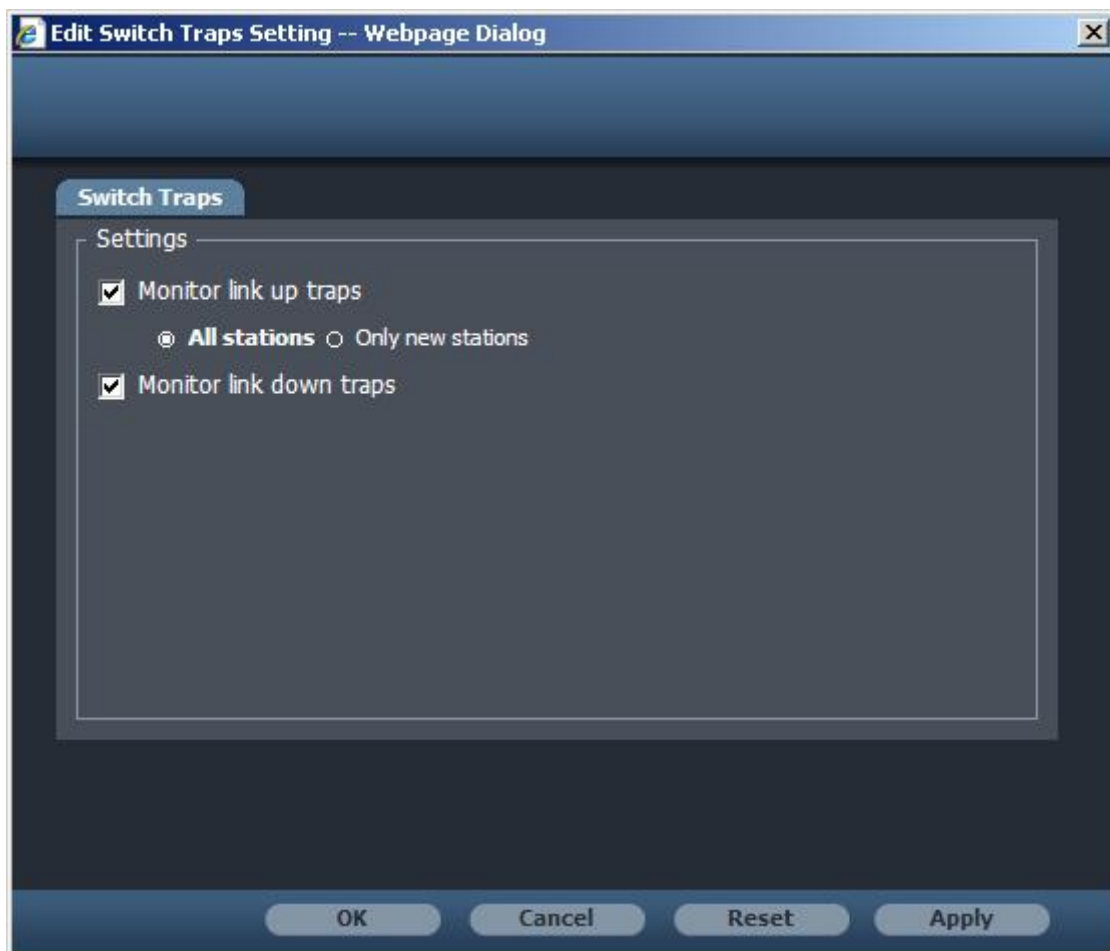


**Note:**

*You must configure the physical switches in your network for the PV4E switch trap feature to operate. If you do not configure the switches, the switch trap feature will not work.*

**> To Activate the Discovery Module Switch Traps**

1. From the **Settings** Menu, select **P-LET**.  
The Discovery Module view appears.
2. Click the Switch Traps tab.  
The Switch Traps settings appear.
3. Click **Edit** to edit the monitor link traps.  
The Edit Switch Trap Settings dialog appears.



*Figure 310 - Edit Switch Trap Settings*

4. Select the required type of events. The events can be reported for link up, link down or both. You can also select if you want to monitor all stations that connect from the network or only new stations as yet undefined in then system. By selecting only new stations, this reduces the number of connect events that appear in the Events window. Only events for new devices added to the network in this case are generated.
5. Click **OK** continue.

> **To Set the Switch Traps Scheduler**

You can schedule when the switch traps mechanism is active. When active, events are generated as a result of connecting and disconnecting devices in the network.

1. From the **Settings** menu, click **Scheduler**.  
The Scheduler view appears.
2. Click the *Switch Traps* tab.  
The contents of the Switch Traps tab appear.

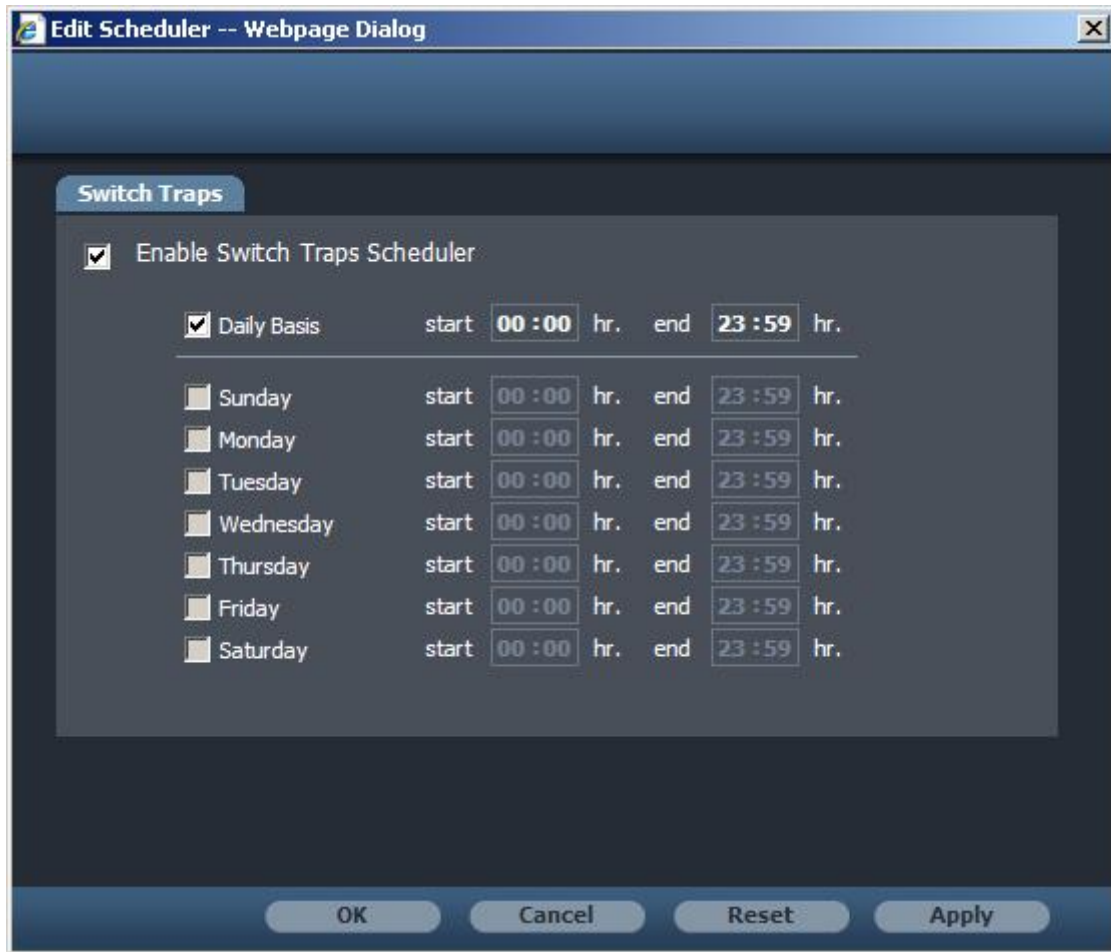


Figure 311 - Switch Traps Scheduler – Switch Traps

3. Click **Edit** to change the schedule for monitoring switch traps from the default setting of 24 hours per day.  
The Edit Scheduler dialog appears.
4. Click **Enable Switch Traps Scheduler** checkbox in order to allow switch traps scheduling.
5. Make any time changes in the dialog and click **OK**.  
The Switch Traps scheduler appears with the changes.
6. Click **OK** to continue.

> **To Set Switch Trap Properties for a Switch**

1. From the Location Tree, click on a switch.  
The switch properties view appears.

- Click the *Settings* tab.  
The contents of the Settings tab appear.

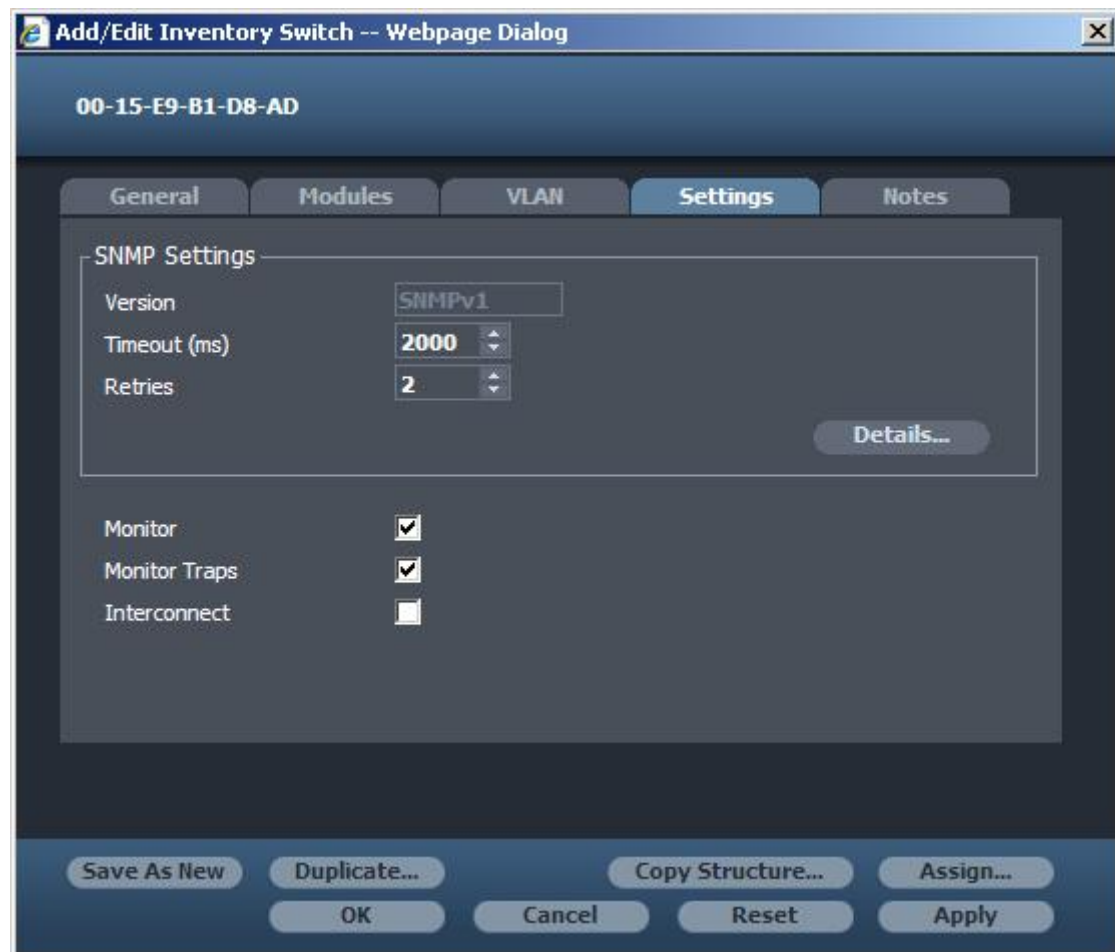


Figure 312 - Switch Settings Properties

Click the *Monitor Traps* field in order to address switch traps sent from the switch. This is the default setting.

**Note:**

*The Monitor Traps field will only be ticked if the switch traps scheduler is enabled and the Discovery Module Switch Traps are activated.*

- To disable switch traps for the selected switch, click **Edit**.  
The *Add/Edit Inventory Switch* dialog opens.
- Uncheck the *Monitor Traps* checkbox to set if the system not to address the switch's traps.
- Click **OK** to continue.  
Verify that the physical switches in the network enable switch traps.

## Inserting Switches to Inventory Using LAN Mapper

After a switch is detected by LAN Mapper and added to the Topology Subnet tree, the switch needs to be added to the inventory.

There are two methods:

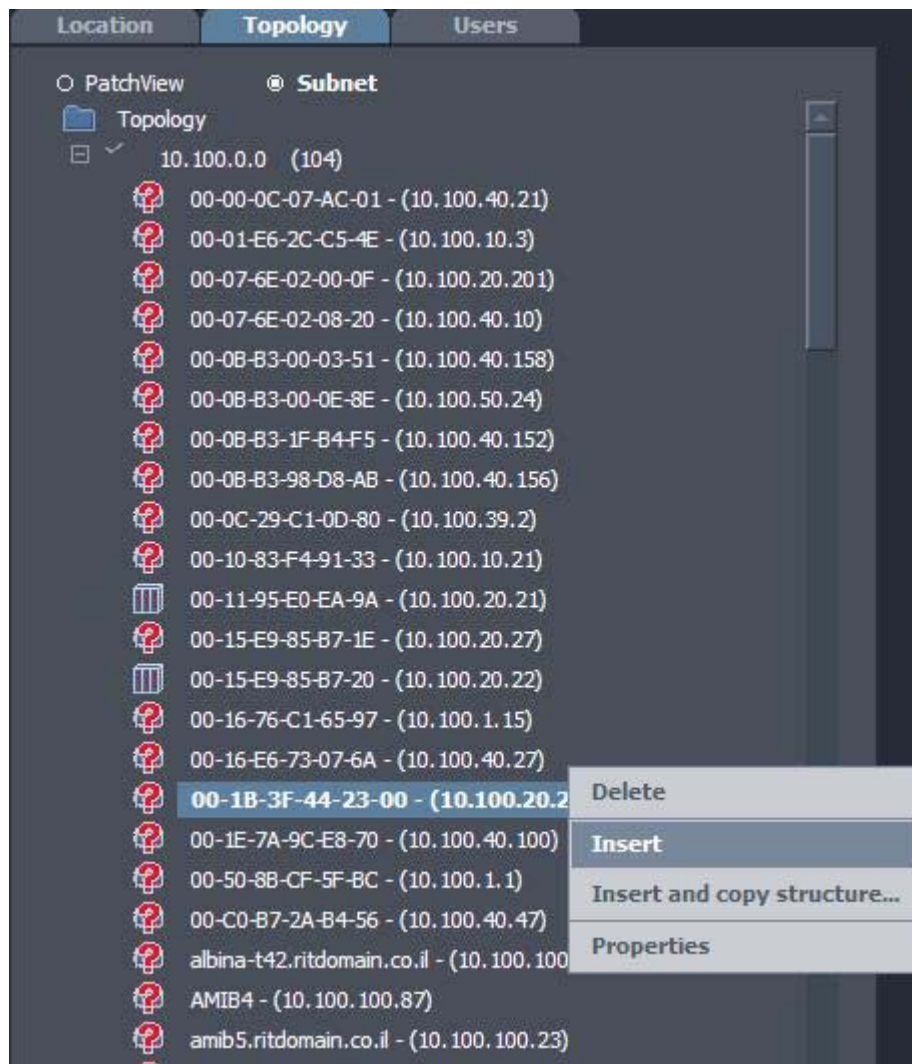
Insert

## Insert and Copy Structure

### > To insert a switch into the inventory:

The *Insert* procedure inserts switches into the inventory that were detected and scanned by LAN Mapper, without scanning them a second time.

1. From the Topology tab, select the Subnet radio button. The Topology tree structure is displayed.
2. Right-click on a switch with a red cross on it and choose **Insert**.

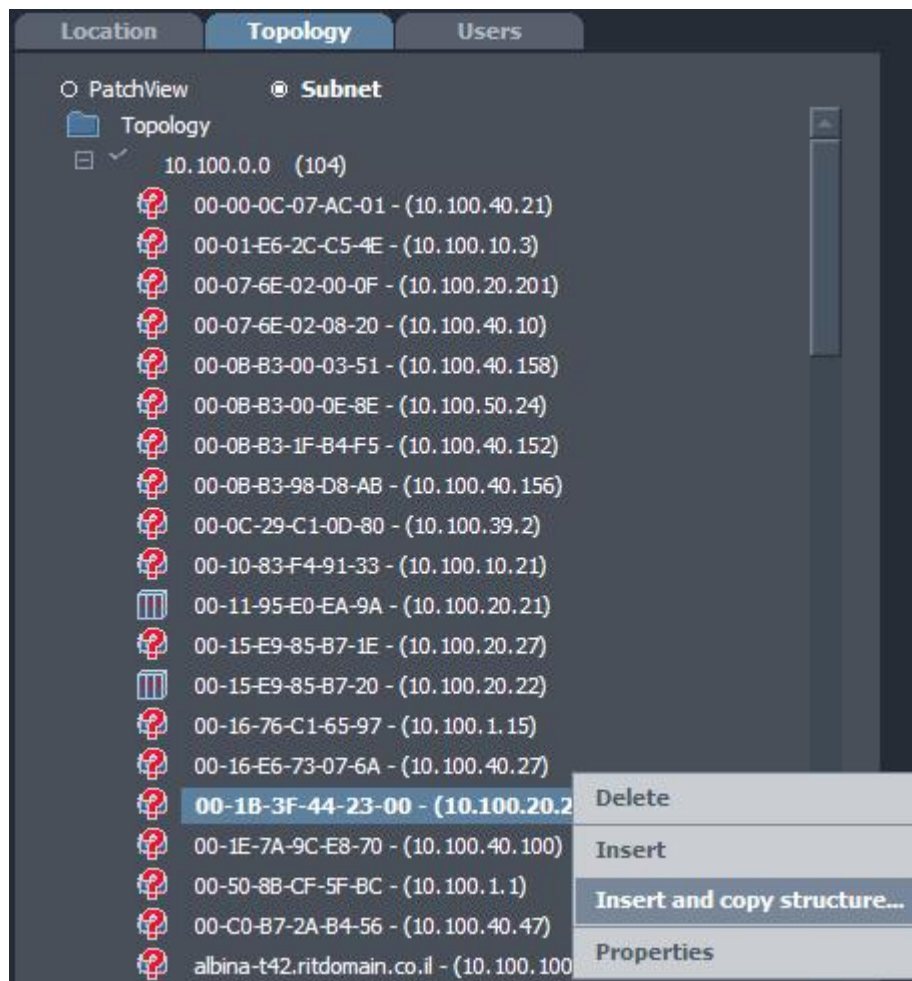


The switch is inserted into the inventory under No Location.

### > To insert and copy structure:

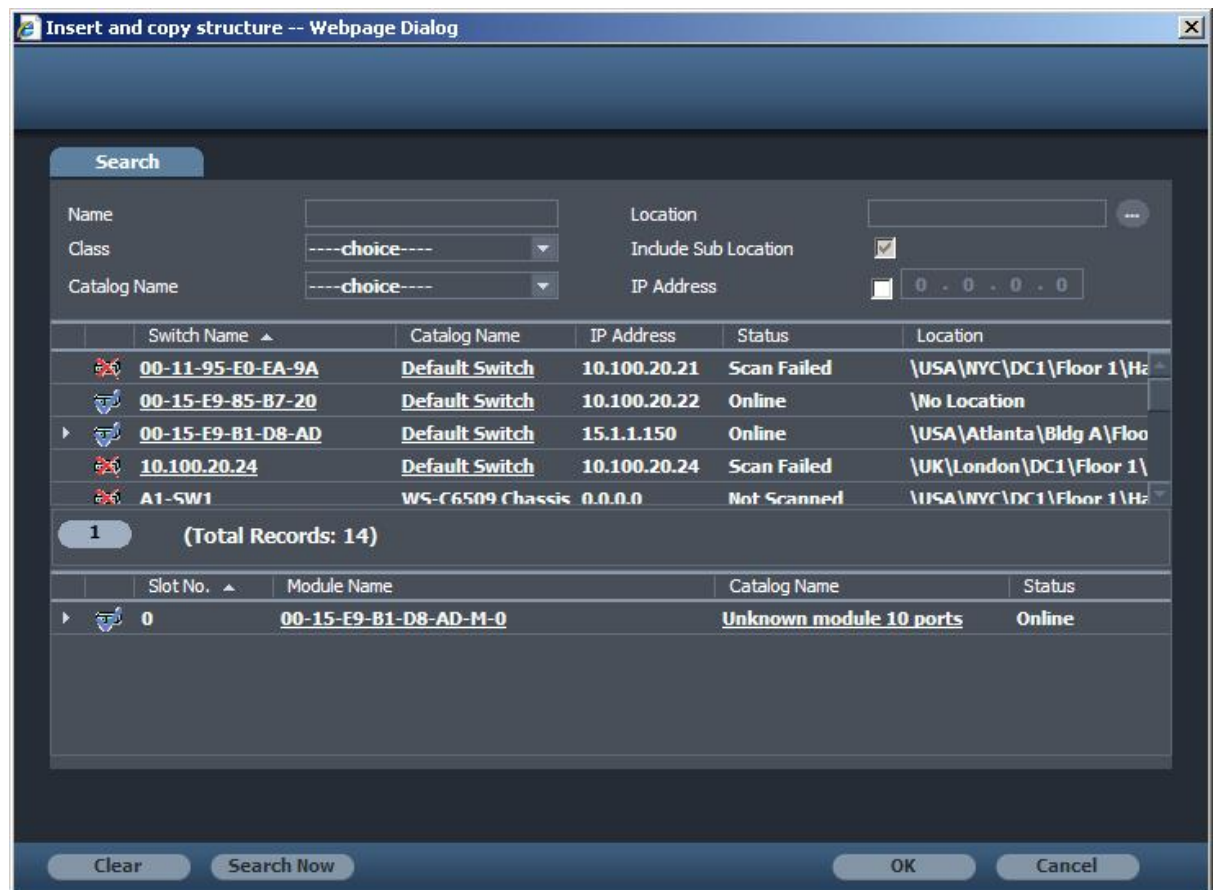
The *Insert and Copy Structure* procedure allows you to copy the structure of a switch already in the inventory to a switch that has been scanned, but not yet inserted. Once the switch is inserted into the inventory, it will have the same structure as the selected switch.

1. Select **Insert and copy structure** from the right-click menu of a switch device (i.e. not in the inventory).



The Insert and copy structure dialog is displayed.

2. Click **Search Now**. A new dialog opens with a list of all inventory switches and a list of their modules.

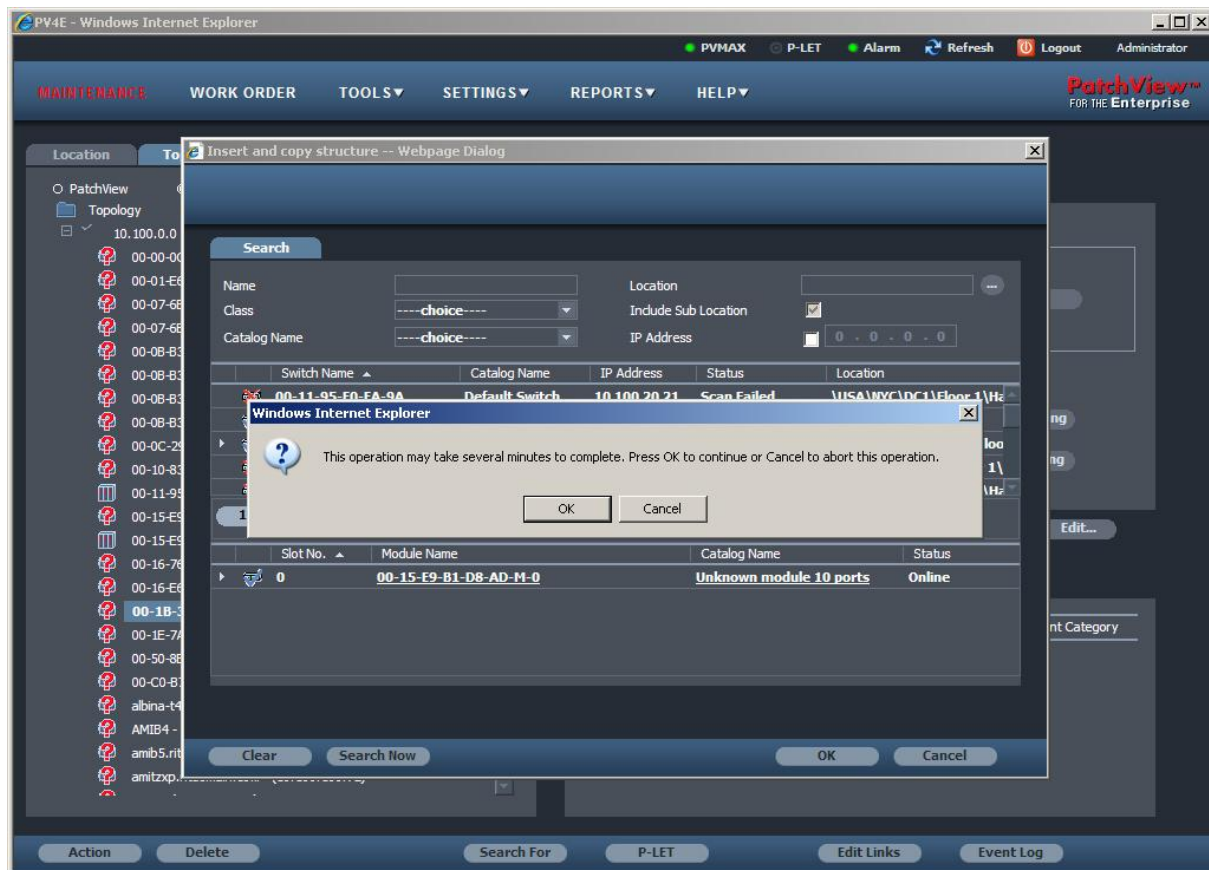


- Select the appropriate switch from the list and click **OK**. A dialog appears notifying you that the operation may take some time.

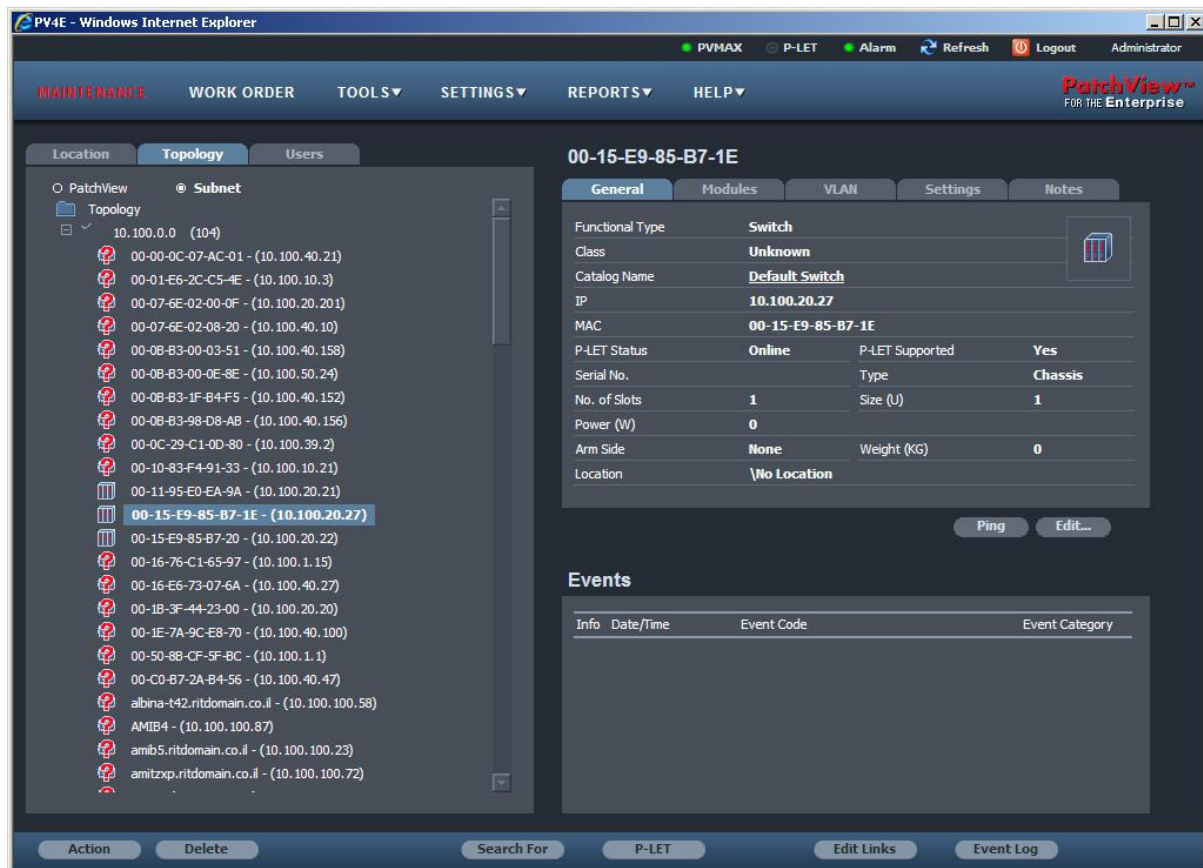
**Note:**

*If the selected switch does not match the switch you want to insert, an error message will appear.*





4. Click **OK** to continue. The switch is inserted into the inventory with the same structure as the selected switch.



## Auto-Detect

Auto-Detect is used to automatically detect devices from the LAN Mapper results and place them in the location tree.

If a device was not previously defined in the location tree, then it will be placed in No Location.

**Note:**

*It is recommended to only Auto-Detect Switches and Routers.*



> **To open Auto-Detect**

1. From the *Tools* Module select **Auto-Detect**.  
The Auto-Detect dialog opens.

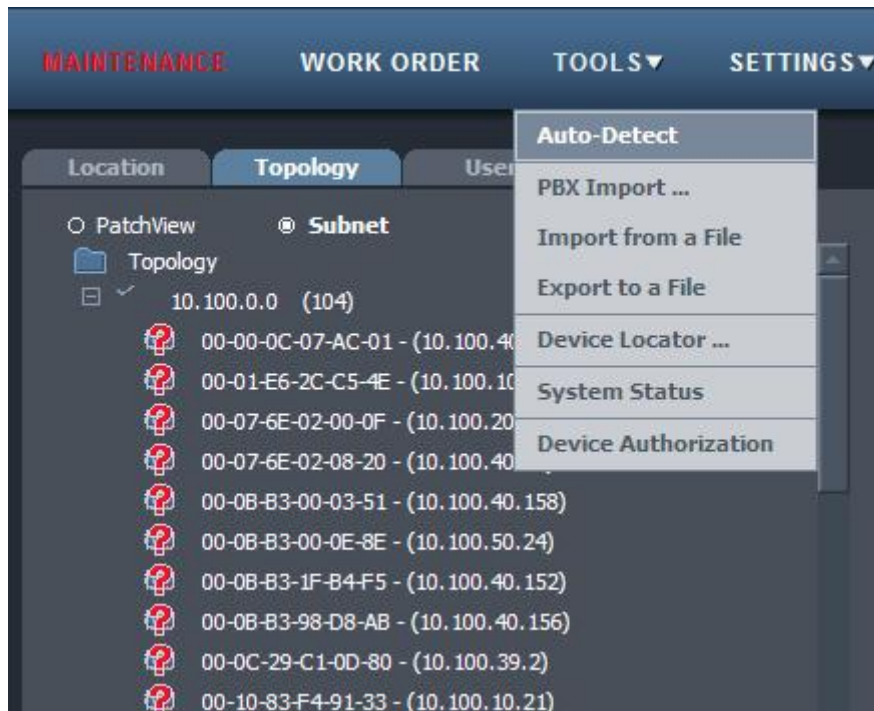


Figure 313 - Selecting Auto Detect

2. Select Switches and Routers.
3. Click **Detect**.

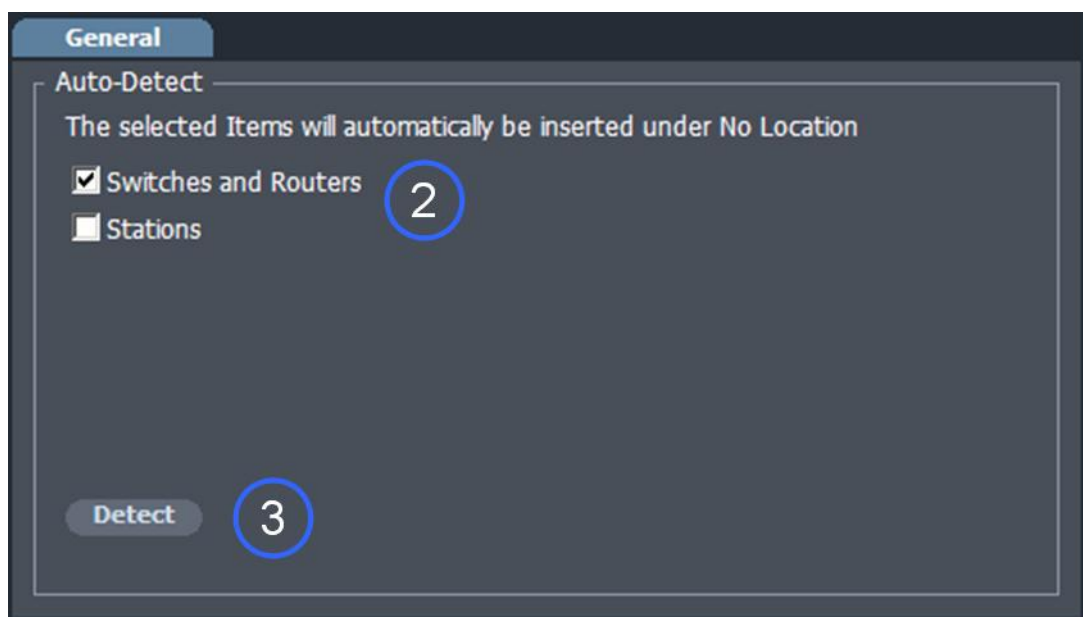


Figure 314 - Auto Detect dialog

The Process will be logged in the *Event Log*.

The discovered switches and routers will no longer have the red cross icon showing.

These devices have been placed in *No Location* and need to be dragged and dropped into the correct location.

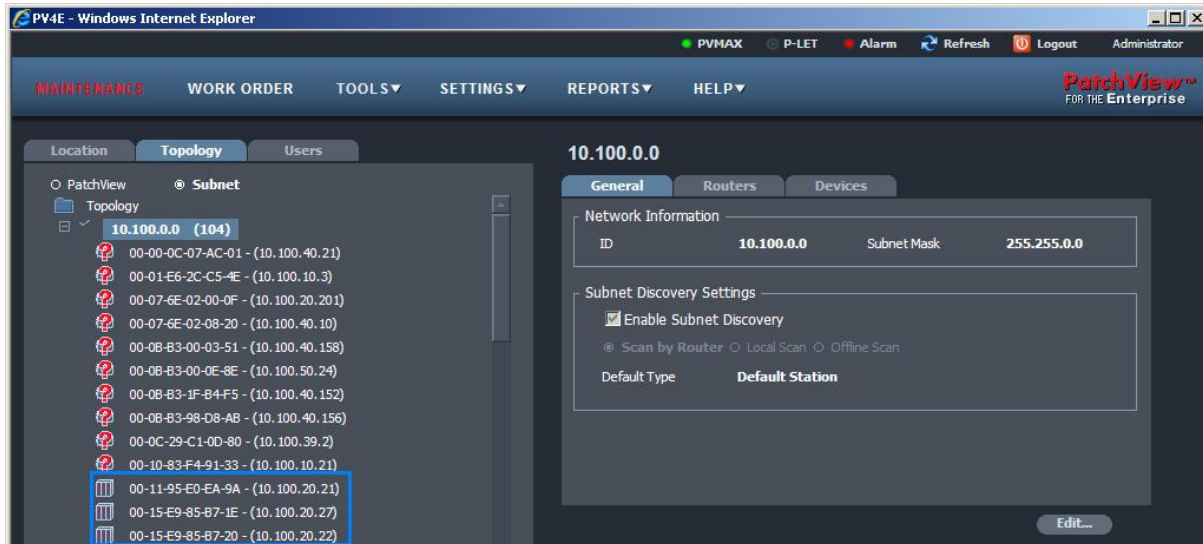


Figure 315 - Auto Detection

## LAN Server

LAN Server will locate all the terminal equipments that were detected by LAN Mapper and will complete the physical link information of each device in the database. This will result in placing the terminal equipment in its correct physical location, together with all its connectivity data.

To activate the LAN Server you have to define the LAN Server Scheduler

## LAN Server Scheduler

The Scheduler defines the time intervals for the LAN Server process. You can select to enable the Scheduler and the Start and End times for either every day or for a specific weekday.

### **Note:**

*RiT recommends that the LAN Server process runs at least twice a day during peak working hours, when the majority of the devices are operable. For example at 11:00 and 15:00 when most devices are active.*

### > **To define the LAN Server Scheduler**

1. From the Settings module select scheduler from the drop-down menu.
2. Select the *LAN Server* tab.  
The *LAN Server Edit Scheduler* window opens.
3. Click **Edit**.
4. Check the *Enable LAN Server Scheduler* checkbox to enable the Scheduler.
5. In the Time Frame field enter the Start and End time, by selecting times from the list boxes. This defines the time interval of the scheduler. For

example from Start Time 10:00 to End Time 23:00.means that no runs will be done after 23:00.

- To run the LAN Server on a daily basis, check the Daily Basis checkbox if you want to set the scheduler to run every day within the specified time interval.

**Note:**

*When the Daily Basis checkbox is selected, the selection of individual days is disabled.*

- Enter the hourly interval required between LAN Server runs

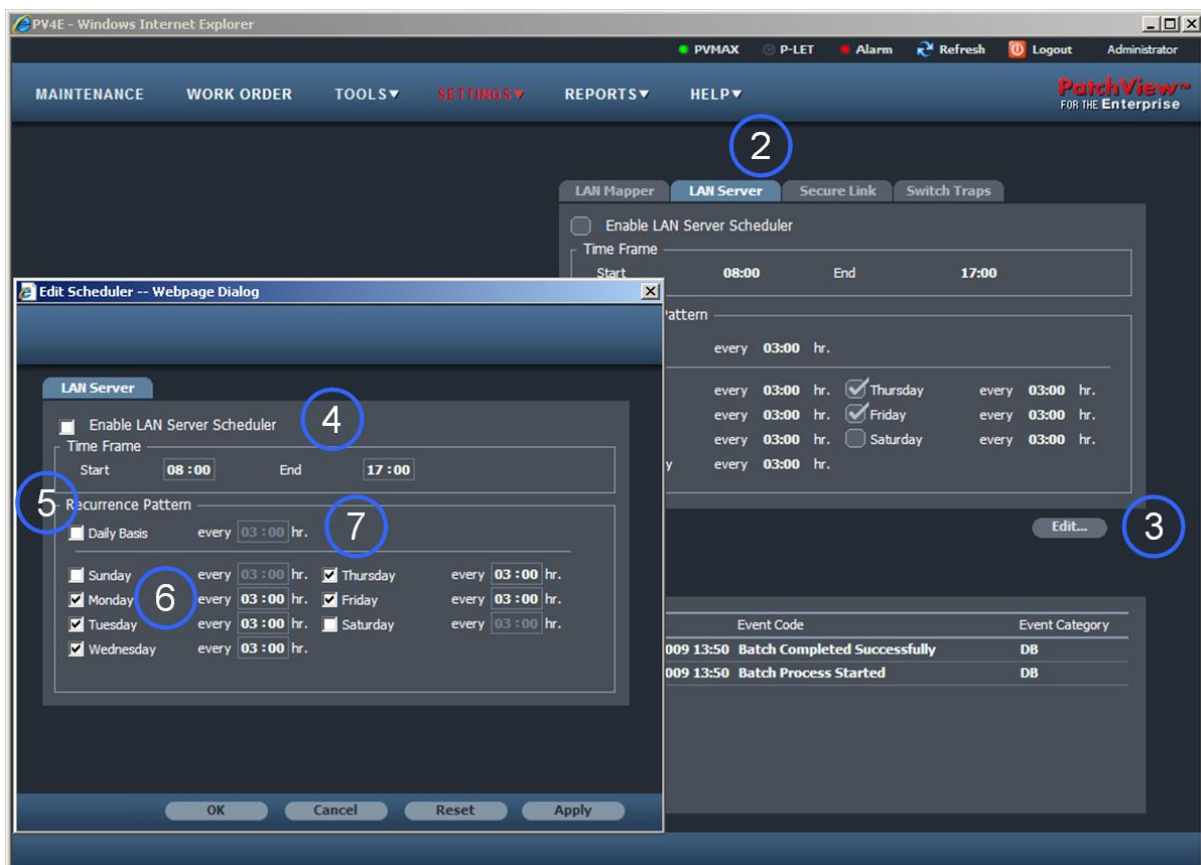


Figure 316 - Defining the LAN Server Scheduler

- Check the specific weekday checkbox if you want to set the scheduler to run on a specific weekday or days.
- Enter the hourly interval required between LAN Server runs for each day selected.
- Click **OK** to continue.

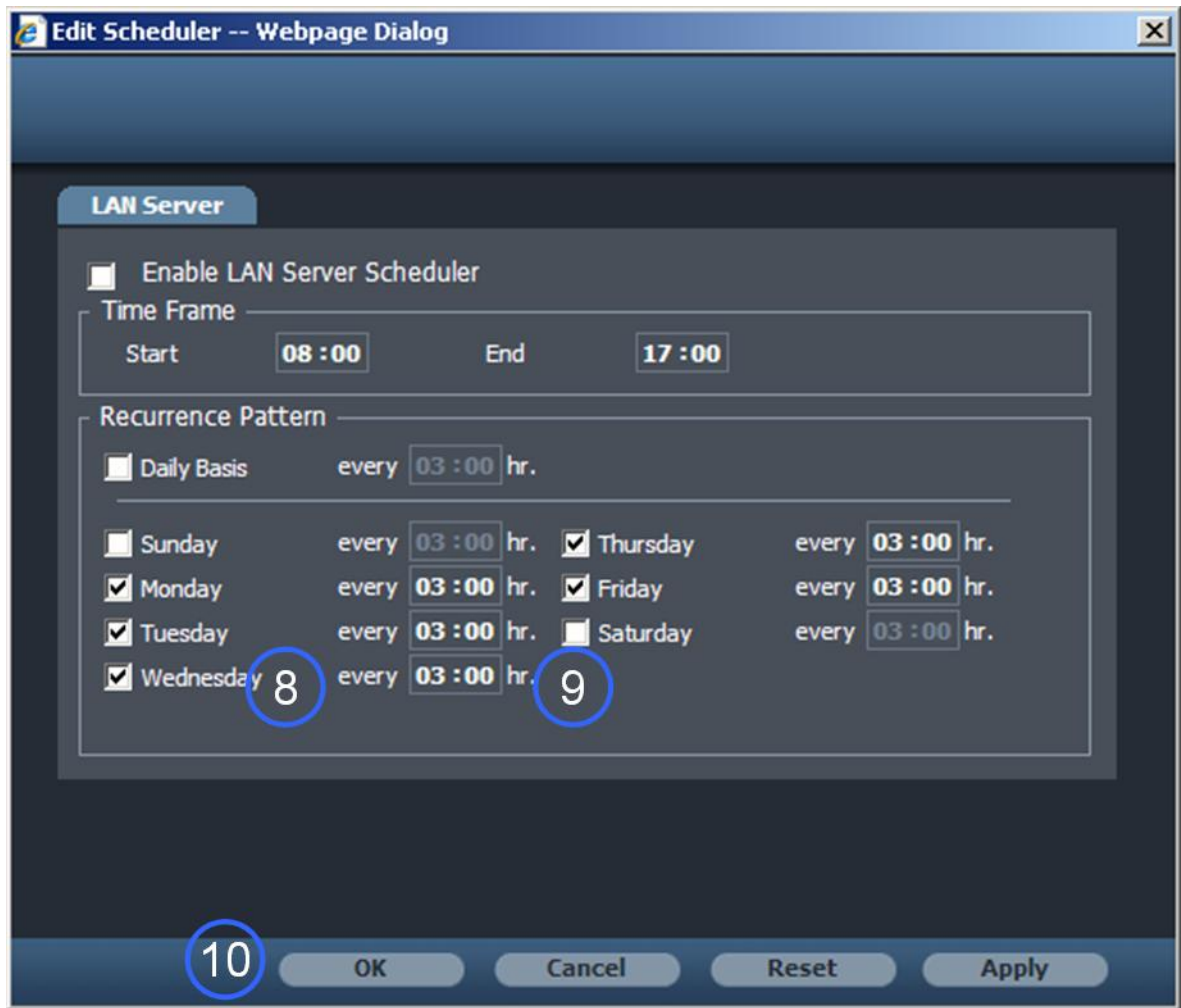


Figure 317 - Defining the LAN Server Scheduler

**Note:**

*If you run LAN Mapper and LAN Server on the same day, they must not be run simultaneously. LAN Mapper must be run first.*

## Run the LAN Server

**Note:**

*When the LAN Mapper is active the Discovery Module indicator button is green .*

The LAN Server will run automatically at the selected time.

During its activation a tooltip indicate the percentage of switches the discovery module scanned so far.

The LAN Server can also be activated manually.

> **To activate the LAN Server manually**

1. From the Settings module select **P-LET** from the drop-down menu.
2. Select the LAN Server tab.
3. Click the **Start Scanning** button to start the manual scan.

4. The results of the scan are noted in the Event Log.

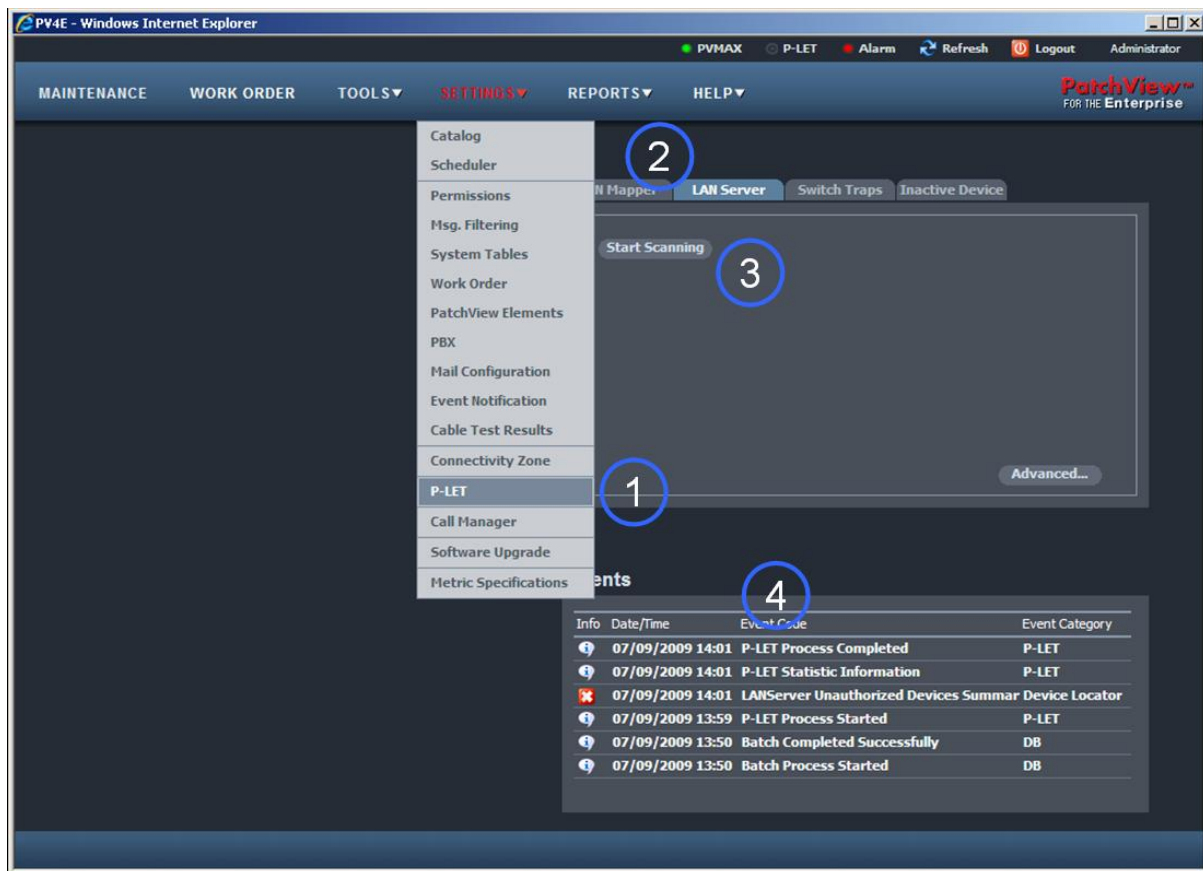


Figure 318 - Activating the LAN Server

## LAN Server Results

There will be two types of results.

Devices that were successfully managed.

This is a device where the physical link information and the network identification information (only MAC address) were detected successfully and placed in its correct location in the database together with its physical link.

Unmanaged devices.

A device where some of the vital information is missing and therefore not allowing the correct detection of the physical location.

## Device Authorization

This feature significantly enhances the system security support functionality.

The Device authorization module enables the user to:

Approve an existing unauthorized MAC address

Authorize new MAC addresses prior to the Discovery Module detection

Get alerts on new MAC addresses detected by the Discovery Module

View all unauthorized MACs

## Authorize/Unauthorized MAC Editor

From the *Tools* menu, > Device Authorization.



The following *Edit Authorized Devices* screen opens:

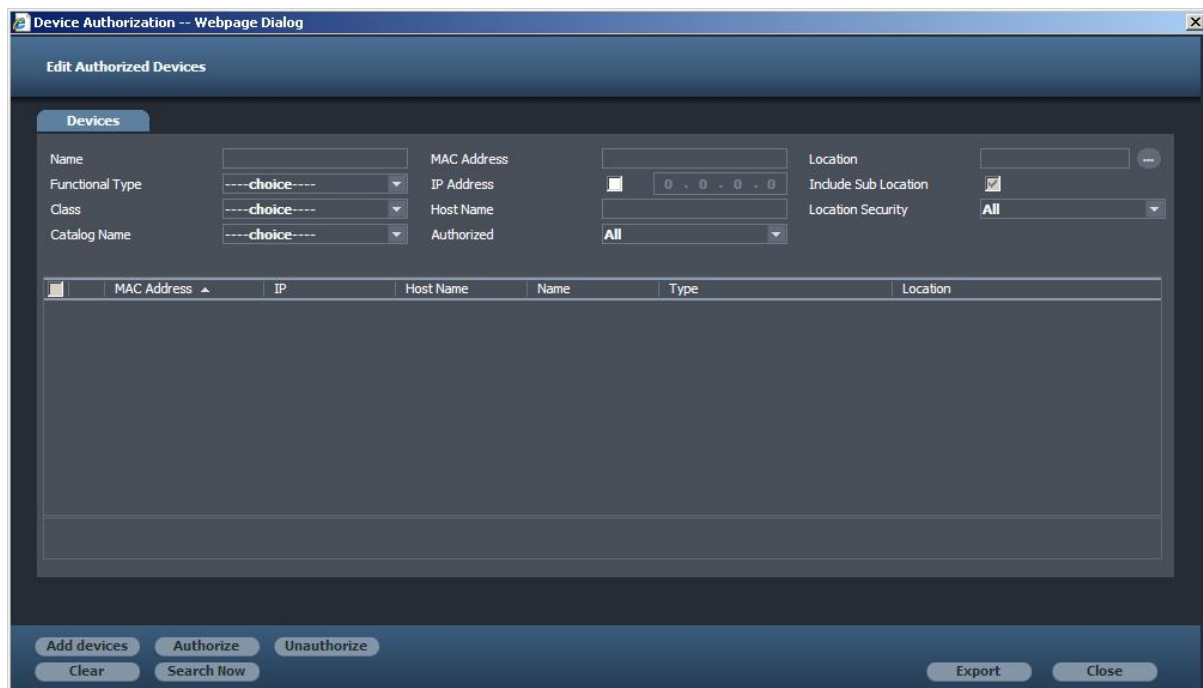


Figure 319 Edit Authorization MAC

Enter the details in the above Devices fields.

Click **Search** to find all related items in the search result pane.





Figure 320 Edit Authorization MAC – Search

The search results contain MAC addresses from three different sources:

- The inventory
- Unmanaged stations – some of the stations that were detected by LAN Mapper but have not yet been placed in their location. These stations do not appear in the inventory tree
- The authorized MAC addresses table. (A MAC addresses table is a database that stores all authorized MAC addresses)

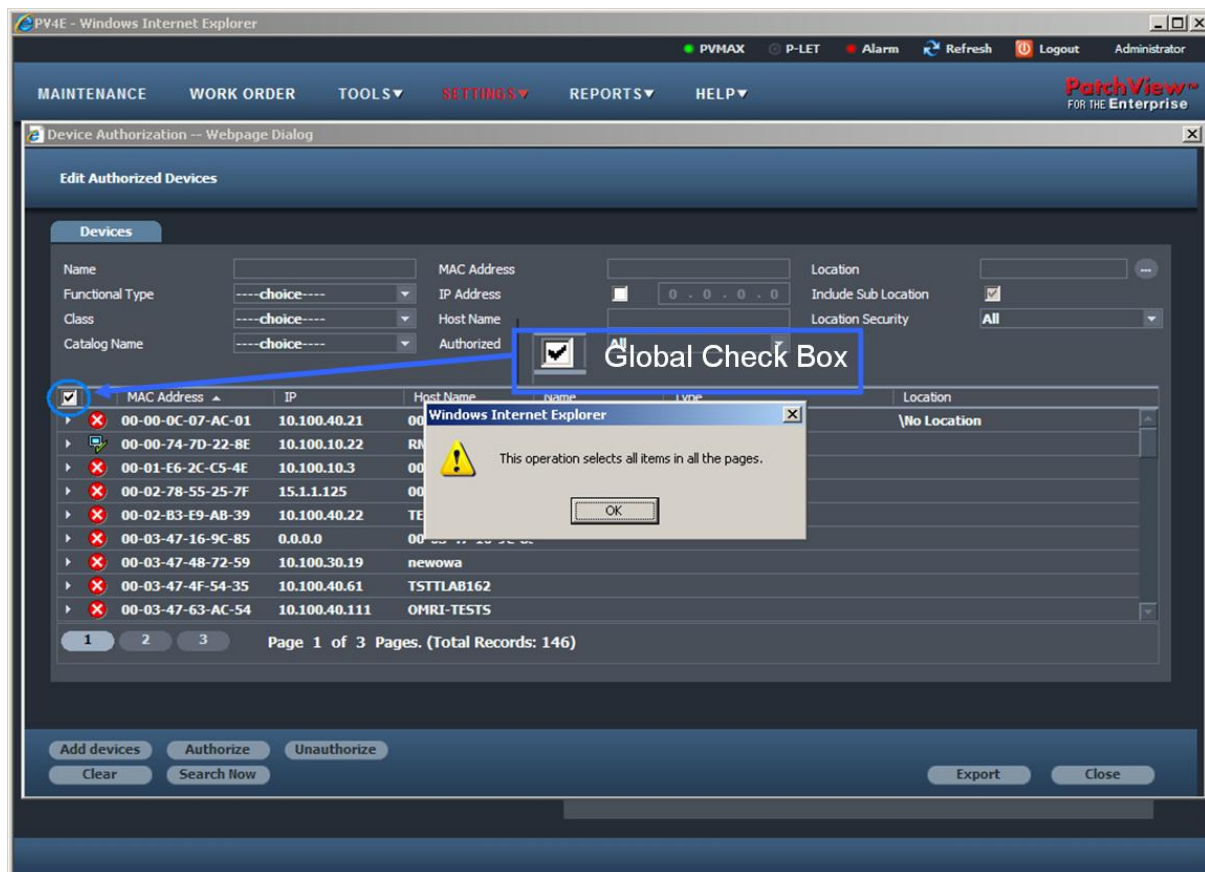


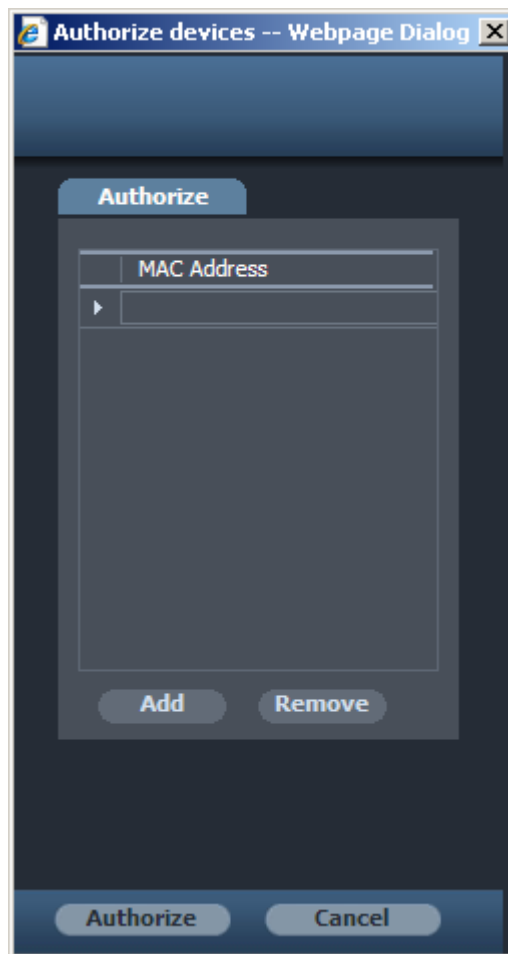
Figure 321 Edit Authorization MAC – Search

A global checkbox enables the selection of all MACs returned by the search, in all of the search results pages. A confirmation dialog box appears when you check the **global check box**, see above screen.



Click **Export** to export the search results to a file. Wildcards can also be used.




To manually add MACs, click **Add Devices** the following box opens:







Enter the MAC address and click **Add** or **Remove**. The MAC address is verified when you click **Authorize**.

To authorize a MAC, select the MAC and click **Authorize**. The icon next to the MAC will change from  to . To view the tooltip stand on the icon. See the following screen.

	MAC Address ▲	IP	Host Name	Name	Type
▶	 00-00-0C-07-AC-01	10.100.40.21	00-00-0C-07-AC-0: 00-00-0C-07-AC-0: Router		
	 Authorized 22-8E	10.100.10.22	RNP7D228E		
	 00-01-E6-2C-C5-4E	10.100.10.3	00-01-E6-2C-C5-4E		

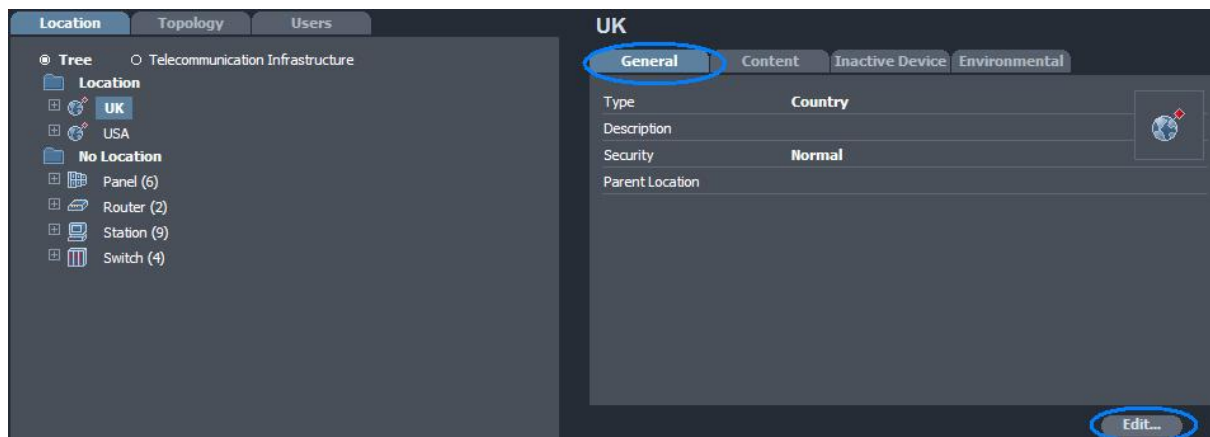
To unauthorize a MAC, select the MAC and click **Unauthorize**. The authorized icon  will change back to  unauthorized.

Click **Clear** to clear all fields in the *Edit Authorize MAC Address* screen.

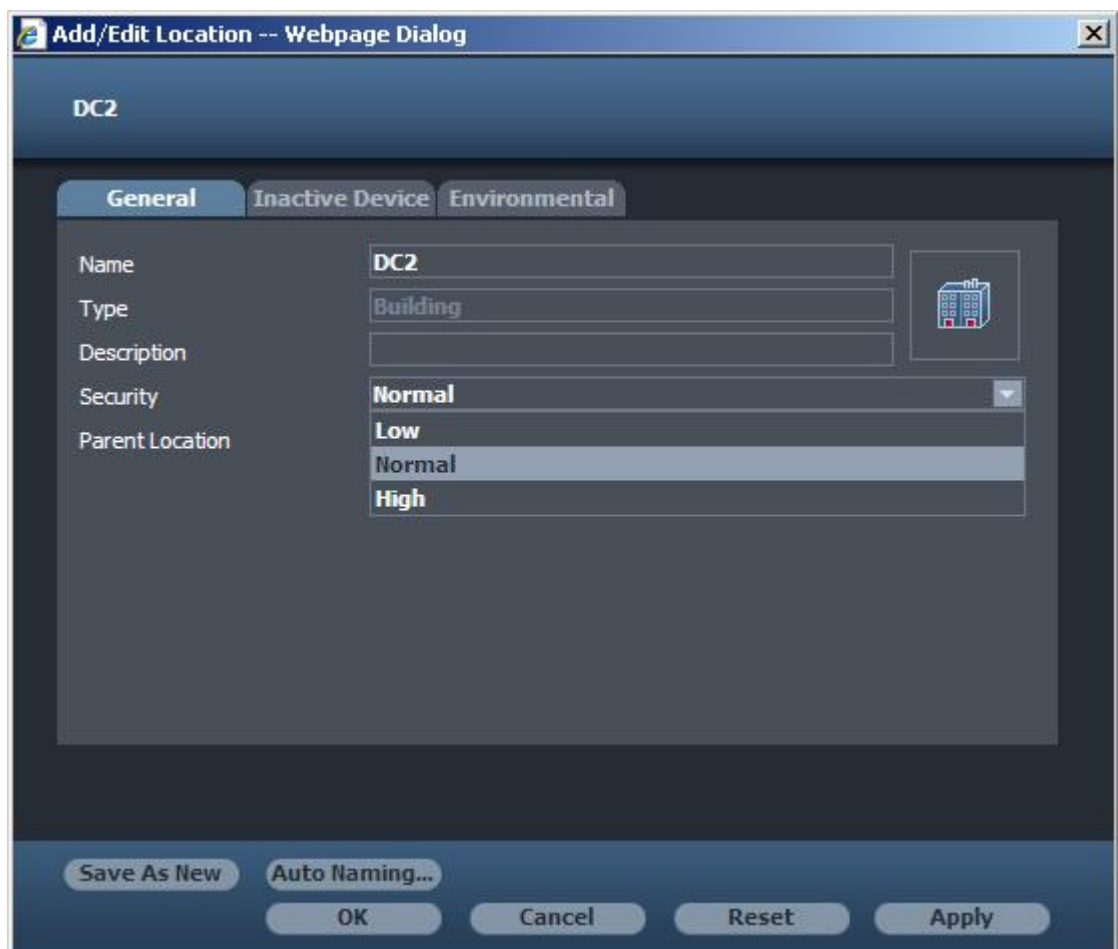
## Changing a Security Zone Setting

> **To change the security zone setting, do the following:**

1. Stand on the location tree and select the item that you want to change.



2. Select the *General* Tab in the *Properties* screen. In the above example, the security setting is Normal. To change, click **Edit**. The following screen opens:



3. In the *Security* field, select Low, Normal or High from the drop-down menu. Click **OK**. The screen will return to the *Content* tab of the *Properties* screen.

## Events

Device Authorization activates the following events:

## New Device Authorized

The *New Device address authorized* event is received when a MAC address is added using the "Add Devices" dialog.

The event includes the following information fields:

- MAC address
- The user causing the event

## Device Authorized for Existing Device

An event is received for 'Device authorized for existing device', for any of the following scenarios.

- A user authorizes an existing MAC address using the MAC authorization editor
- A MAC address is automatically authorized

The event includes the following information fields, not all fields have values:

- MAC address
- IP address
- Host name
- Location
- Functional type
- Inventory name
- The user causing the event

## Unauthorized Device Detected

The *Unauthorized MAC address detected* event is received when a network component with an unauthorized MAC address is detected by the server.

The event includes the following information fields:

- MAC address – Always available
- Event severity – Always available
  - Error: For detection in a location with high security level
  - Warning: For detection in a location with medium security level
  - Info: For detection in a location with low security level, or when adding new MACs

The following circumstances may cause the event to be received:

### Switch Trap

A device is connected to a switch that generates a switch trap.

The switch trap triggers the Discover Module to scan the switch port to where the device is connected.

If the Discovery Module recognizes a device that does not have an authorized MAC address, an event is received.

### Device Locator

When a Device Locator is executed and does not have an authorized MAC address.

**Switch Scan**

When a switch scan is executed and detected devices do not have an authorized MAC address.

**LANServer Scan**

When the LANServer locates MAC addresses scanned by the LANMapper it fires events with severity according to the security level of the location. MAC addresses that are not located in a specific location will not cause the firing of an event.

**The Unauthorized MAC Station Moved**

When an Unauthorized MAC station moved event is received, the LANServer concludes that a station with a non authorized MAC address moved from one location to another. The severity of the event is decided according to the security level of the new location.

**The LANMapper MAC Addresses Summary**

The LANMapper might scan unauthorized MACs. However, it does not necessarily associate them with a specific location, therefore an unauthorized MAC event cannot be received.

Instead, the LANMapper fires a single event summarizing:

- The number of authorized MACs detected
- The number of unauthorized MACs detected

**The LANServer Unauthorized Summary**

On completion of the LANServer, a summary event that includes the following information is received:

- Number of new unauthorized devices that could not be placed in a location
- Number of unauthorized devices placed in low security locations
- Number of unauthorized devices placed in high security locations
- Number of unauthorized devices placed in normal security locations

A "New unauthorized device" is an unauthorized MAC that was detected by the PV4E by the last LAN Server run.

**GUI Indications**

The location tree and search results views do not present any indications for items having unauthorized MAC addresses.

**Terminal Equipment Addition/Deletion**

The MAC address is automatically authorized when you add terminal equipment devices and specify its MAC address.

When you delete a terminal equipment device, the MAC address is removed from the authorized MACs list.

**Switch/Call-Manager Detection/Deletion**

When the switch or a call manager is detected by the user, its MAC address is authorized automatically, provided that the server determines an IP to MAC relation.

When it is deleted, the MAC address is removed from the authorized MACs list.

## Router Scanning

During subnets scanning, routers MACs are automatically authorized, provided that the server determines an IP to MAC relation.

## Virtual Devices

The PV4E server identifies virtual devices by their MAC address prefix, and associates them with a physical host connected to the same switch port.

Virtual devices are ignored regarding MAC authorization. Their addresses do not appear in the MAC authorization editor, and MAC authorization related to these events are not received.

## Inactive Device Module

Designed with asset management in mind, the Inactive Device module improves the accuracy of your network information by automatically eliminating devices which are no longer connected to your network. This is done by periodically comparing the last activity date of each IP driven device with the time of the scan.

The Inactive Device module allows you to keep continually updated and detailed information about your IP driven assets in terms of their activity status.

The Inactive Device module automatically manages the following four-time stages for IP driven devices. The time limits are set by the user, per location or at one central place for the entire system. The stages are:

1. Active
2. Idle
3. Dormant
4. Decommissioned

### **Note:**

*For manually entered devices the status is set to Manual and is never changed by the system. If at any given time the device has been detected by the Discovery Module then the above mentioned status applies (active, idle, dormant, and decommissioned)*

When scanning, PV4E compares the difference between the current time and the last time that each device was found by the Discovery Module. The time difference is then compared to the different time limits defined by the user. When a time limit exceeds a specified threshold, the time limit of the device is automatically changed and the device is moved to one of the above four stages. This change is automatic and cannot be managed manually.

### **Note:**

*Every device which is detected for the first time is associated with the Active status.*

To move from one stage to another, the time interval that has passed since the last stage must be greater than the time defined by the user. If no time thresholds are set, then all devices are considered *active*.

## Device Status Movement

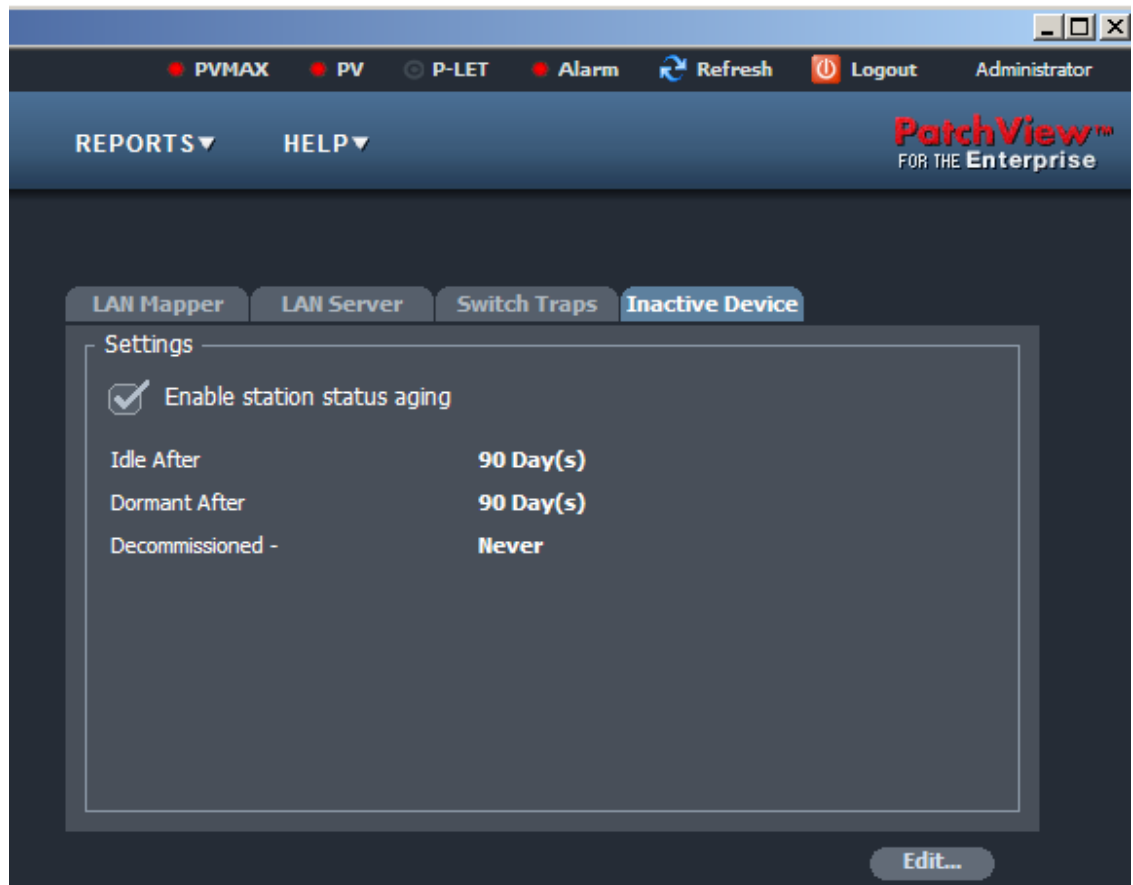
A device status is bidirectional and can move from one status to another, for example: a device can be changed from Active to Idle and from Idle to Active. However, once an item moves from the dormant stage to decommissioned, it is deleted from the PV4E database and will no longer exist in the application.

## Activating the Inactive Device Module

In *PV4E*, select *Setting>P-LET*. The following screen opens:



Select the *Inactive Device* tab, the following screen opens:



The *Inactive Device* module is enabled by default. If you want to change this setting, click **Edit...** and uncheck the *Enable station status aging* checkbox.

Click **Apply** to save your changes or **OK** to save your changes and close the window.

## Setting Time Limits

You can set up to three time limits. The following time limits are set by default:

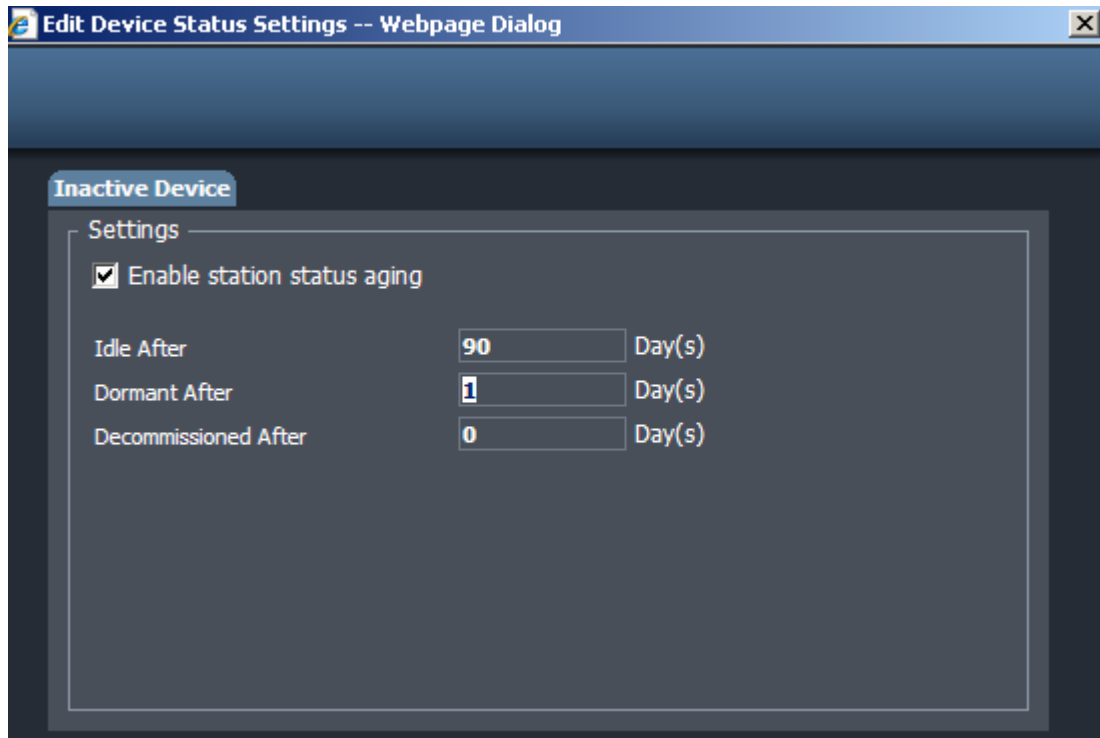
Threshold	Time elapsed
Active to Idle	90 days
Idle to dormant	180 days (From 'active' status)
dormant to decommissioned	0 (never)

## Defining Time Limits

You can set system-wide limits or alternatively, set time limits per location. To set time limits for the entire application, do the following:

1. In *PV4E*, select *Setting>P-LET*.
2. Select the *Inactive Device* tab.

3. Click **Edit**.
4. Change the setting to any of the thresholds as illustrated in the following screen:



When changing the settings, please pay attention to the following:

- If you set any of the thresholds to *zero*, once you exit the edit mode the application will display *Never*.
  - If you set *Decomissioned* to *zero*, the application will never decomission any item.
  - Each threshold refers to the time it takes to exceed the previous version. For example, in the above screen it takes 90 days to shift from *Active* to *Idle* and one day to shift from *Idle* to *Dormant*. No auto-decomisioning will take place in this example.
5. Click **Apply** to save your changes or **OK** to save your changes and close the window.
- > **To set the thresholds for a specific location do the following:**
1. Select your target location.
  2. Select the *Inactive Device* tab
  3. Click **Edit**. The following screen appears:



4. Check the check box marked *Override system defaults* to allow a different setting than that of the system's settings.
5. Set the relevant thresholds.
6. Click **Apply** to save your changes or **OK** to save your changes and close the window.


## Events

### Decommissioned Devices

When the status of a device is changed to Dormant/*Decommissioned* an event is fired in *PV4E*. The event specifies the name of the device, the date and the time.

## Unmanaged Devices

### **Note:**

*When the Managed/Unmanaged Devices process is running, the Discovery Module indicator button is yellow .*

When running the LAN Server PV4E automatically detects and places all the devices within the network creating a full link for each device. Devices that have certain information missing, not allowing a full link to be created, are called unmanaged devices.

This missing information can be:

Missing IP (check for subnets that did not have access permission or were not located by the LAN Mapper)

Invalid link (A link that is not valid)

A valid link:

starts with a switch port and terminates with an outlet port  
or

starts with a switch port and terminates with a panel that is designated as a link terminator. This is where a panel is used for multiple outlets. See *Setting Up Projects Chapter, Adding a Patch Panel*.

You can view the Unmanaged Devices and choose to add them to the location tree and/or link them manually.

> **To view Unmanaged Devices**

1. Open the Maintenance Module.
2. Select P-LET from the bottom toolbar.
3. Select Unmanaged Devices from the menu.

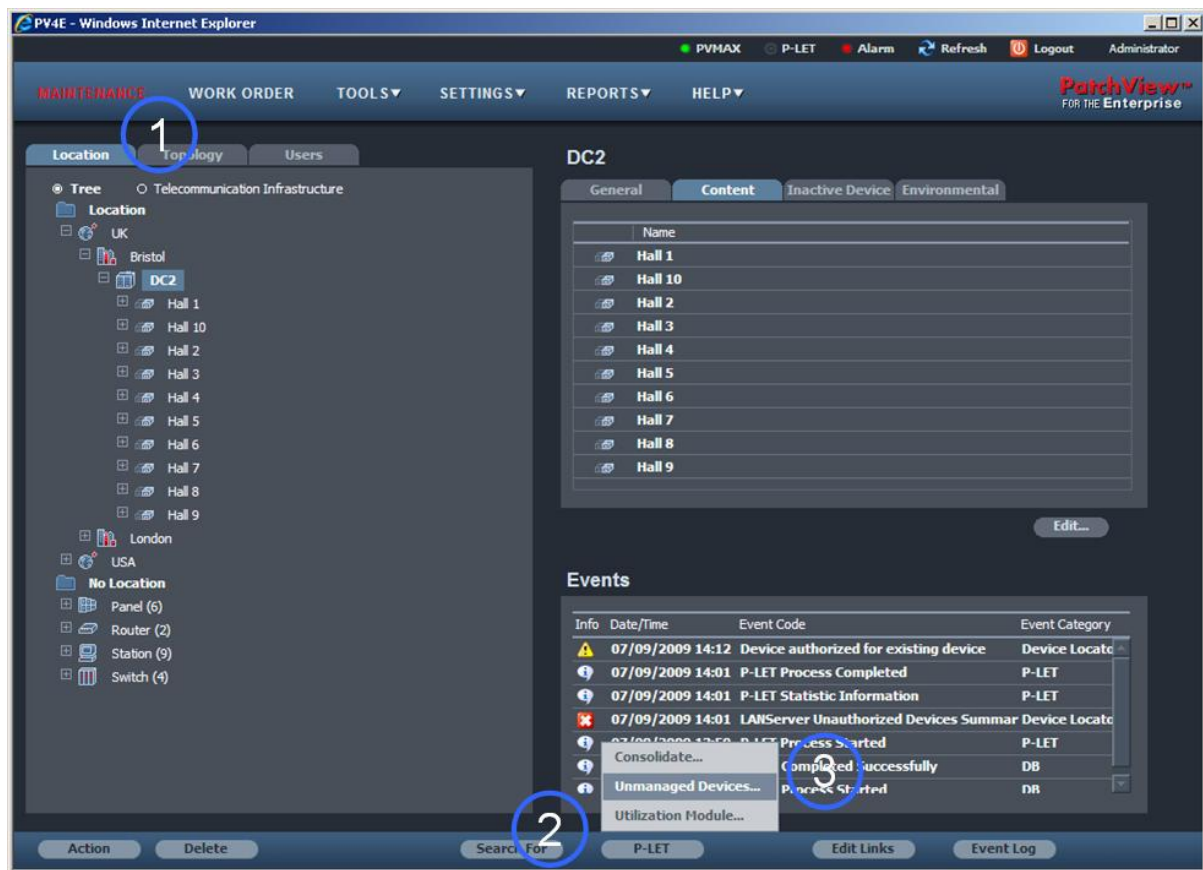


Figure 322 - Viewing Unmanaged Devices

4. The Unmanaged Devices search window opens.
5. Click **Search Now** to find all the unmanaged devices.  
A table appears with details of the Unmanaged Devices. You can sort the table according to each particular parameter by clicking on the header of the column by which you want to sort.

Figure 323 -Unmanaged Devices search window

### > To work with Unmanaged Devices

The table of the unmanaged devices is divided into two main areas:

- The left side has the switch port information
- The right side has the device information found to be connected to that switch port

From this view we can see if the IP address for a specific device is missing. If so refer to the LAN Mapper. Without the IP address, the Discovery Module will not be able to detect this device.

If the IP is there, continue to select the ports to be viewed or edited.

1. Select each Unmanaged Device separately or shift click for multiple selection.
2. Right click and select either **Edit** or **View link** from the drop-down menu.
3. Edit Link will allow you to view and edit the link and View link will allow you to only view it.

Switch					Device			
IP Address ▲	Module ID	Port ID	VLAN	Location	IP Address	MAC Address	Device Name	Ext. IP
View Link	3F-44-23-00	Port 040	VLAN 100	\No Location\00-1B-3F-44-23-00	10.100.100.30	00-1C-C4-CE-6F-DA	sagivg-hp.RITDOMAIN.L	
Edit Link	3F-44-23-00	Port 041	VLAN 100	\No Location\00-1B-3F-44-23-00	10.100.100.38	00-21-86-60-FB-AC	yarivlritdomain.co.il	
10.100.20.20	00-1B-3F-44-23-00	Port 042	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-19-D1-25-43-D4	00-19-D1-25-43-D4	
10.100.20.20	00-1B-3F-44-23-00	Port 043	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-11-0A-C3-2E-C8	00-11-0A-C3-2E-C8	
10.100.20.20	00-1B-3F-44-23-00	Port 044	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-11-25-43-A4-BB	00-11-25-43-A4-BB	
10.100.20.20	00-1B-3F-44-23-00	Port 045	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-24-81-F7-31-7D	00-24-81-F7-31-7D	
10.100.20.20	00-1B-3F-44-23-00	Port 047	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-1F-16-06-F3-7D	00-1F-16-06-F3-7D	
10.100.20.20	00-1B-3F-44-23-00	Port 050	VLAN 100	\No Location\00-1B-3F-44-23-00	0.0.0.0	00-11-25-R5-38-2D	00-11-25-R5-38-2D	

Page 1 of 2 Pages. (Total Records: 58)

Figure 324 - List of Unmanaged Devices

4. In the *Edit/ View Link* dialog you can create a valid link for the Station.
5. Select the Switch to create the valid link, the correct Switch port appears with its attached components.
6. Fix and complete the link.

**Note:**

*If you edit or create links for the Unmanaged Device it appears in the table of Unmanaged Devices until the next LAN Server run. The next run updates the database and the device no longer appears as an Unmanaged Device.*

## Utilization Module

The *Discovery Module* scans the ports of all the Switches in the network. The system collects the activity information of each Switch port and identifies the last date and time the port was active. Using the Utilization module you can determine not only the last activity of the device, but its actual physical link information.

This process can determine if there are wasted resources in the switches. This occurs for example if a station was moved from one location to another without the patch cord being removed.

The unused Switch ports are called Unutilized ports.

### > To view Unutilized Ports and Devices

1. Open the Maintenance Module.
2. Select the *P-LET Module* from the bottom toolbar.
3. Select Utilization Module from the menu.

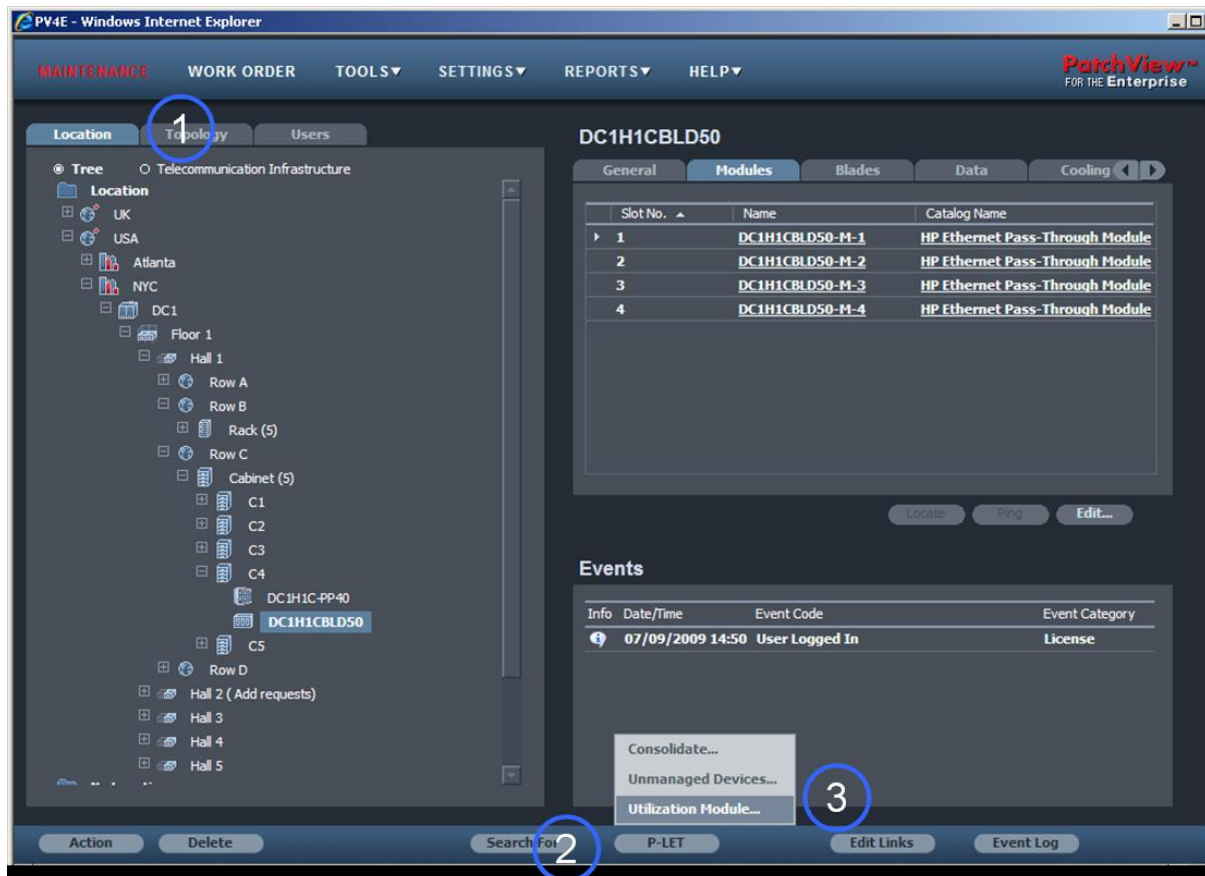


Figure 325 - Viewing unutilized Ports and Devices

The Utilization search window opens.

4. Fill in the search parameters.

5. Fill in the Inactive days field.

**Tip:**

*For example, to see which ports/devices have not been used for a period of time, put in 30 days. This will give a list of unutilized ports/devices for 30 days or more.*

6. Click **Search Now** to find all the unutilized ports.

Figure 326 - Utilization search window

A table appears with details of the Unutilized Ports and Devices. You can sort the table according to each particular parameter by clicking on the header of the column by which you want to.

### To work with Unutilized Ports and Devices

The table of the unutilized devices is divided into two main areas:

On the Left side is the switch port information area

On the right side the device information showing the last active day and the information of the end device which was the last to be connected to the switch port.

From this view we can see which ports and devices are unutilized. Instructions can be given according to this list to break the links of the unused switch ports and reutilize them.

The ports and or devices can be reallocated.

You can select each Unutilized Device separately or using either the <Alt> or <Ctrl> keys make a multiple selection.

1. Select View Link to View the links of the Unutilized devices and return to the search.
2. Select Edit Link to open the Edit Link Worksheet. Complete the necessary changes and return to the search.
3. Select the ports or devices to be removed from the list (optional).
4. Click **Remove**.
5. A warning message appears. Click **OK** to continue.

**Note:**

*If you select **Remove**, the ports/devices are removed only from the unmanaged list.*

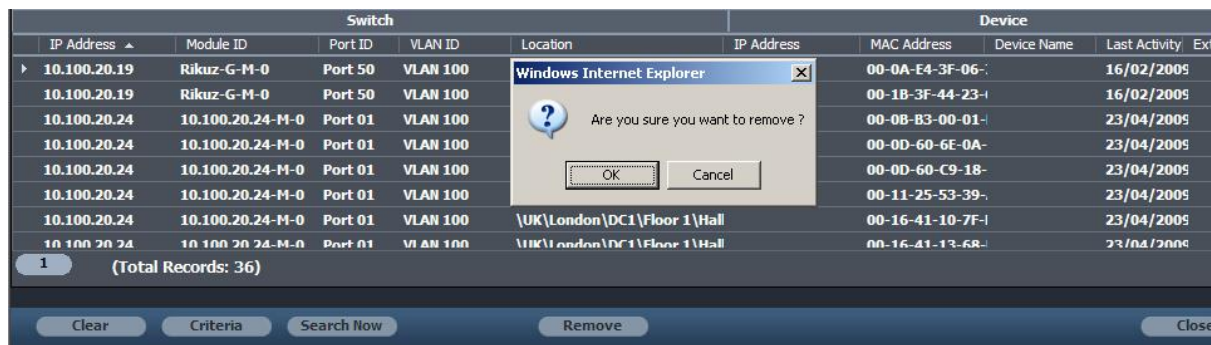


Figure 327 - Removing unutilized Ports and Devices

## IP Telephony

PV4E supports IP telephony systems that are integrated within the enterprise's network. The application interacts with the IP Telephony Call Manager through SNMP to provide up-to-date connectivity information and the extensions of the IP telephones in the network.

Presently, the Cisco IP phone is supported.

## The Call Manager

The Call Manager, which processes information from IP Phones, must be defined with its IP address and other information, before you run the LAN Mapper.

In order for the Discovery Module to detect, create and place IP Phones in their correct location in the database, the Call Manager needs to be defined.

### **Note:**

*If clustering is used, then more than one Call Manager can be defined for redundancy.*

## Defining the Call Manager

### > To define the Call Manager

1. From Settings select Call Manager from the drop-down menu. The Call Manager Screen opens
2. Click **New button** to open the *Add/Edit Call manager dialog*.
3. Fill in the IP Address.
4. Accept the default of the Timeout, Retries and Community fields or change them (optional).
5. Click **OK** to save the information.
6. The information of the Call Manager is listed in the Info pane. The Call Manager Screen opens.



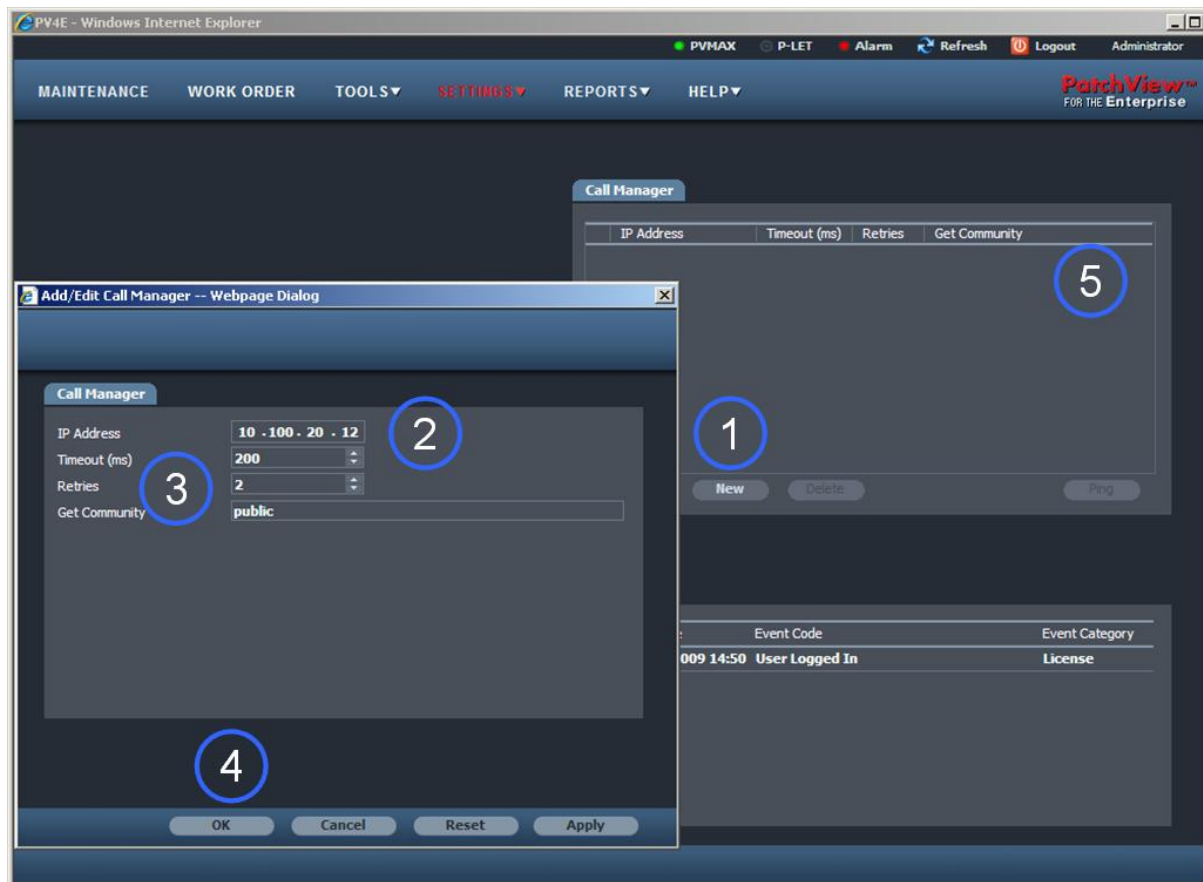


Figure 328 - Defining the Call Manager

## Enhanced IP Phone Discovery

The *Discovery Module* now recognizes IP phones, including those that are connected to call managers that do not reveal its unique information.

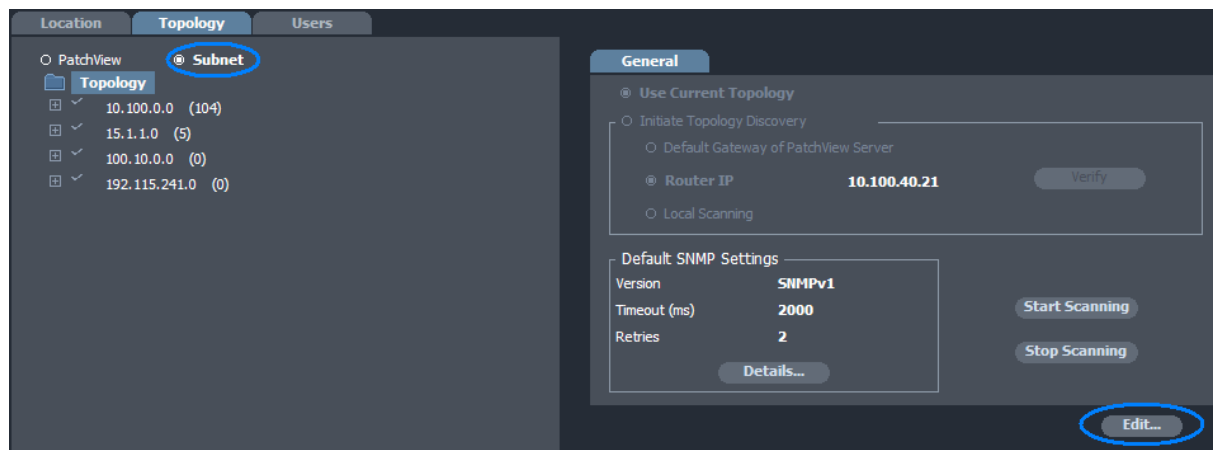
This update enables you to recognize any type of IP phone which is associated with a specific subnet(s). However, extension information can only be extracted from the Cisco Call Manager.

For the Discovery Module to identify all devices associated with any of the subnet(s) IP phones, you first need to set the default device type of the subnet(s) as IP phone subnet(s). See the following section.

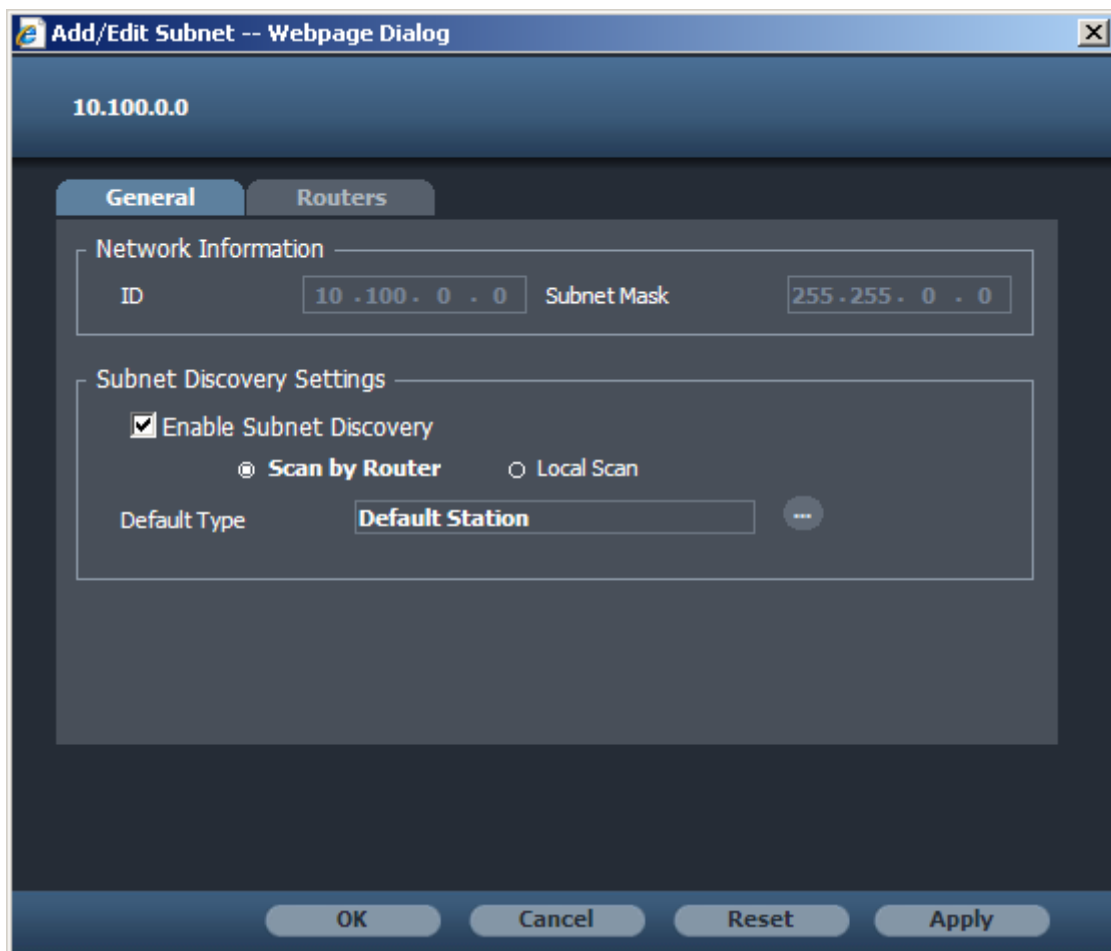
## Marking a Subnet as an IP Phone Subnet

To mark a subnet as an IP phone subnet, do the following:

1. In the *Topology* tab of the *Maintenance* screen, select the Subnet radio button. A list of Subnets appears in the tree. Click a **Subnet**.



2. The following *Add/Edit Subnet* window opens:



3. Change the default device type to any of the predefined IP Phones in the catalog.
4. Click **OK**.
5. Run the LAN Mapper.

Once the process has completed – all the devices that are associated with subnet(s) marked as 'IP Phone subnet' will appear in the application as an IP phone.



**Note:**

*The extension numbers of IP phones using this method are not identified*

**Note:**

*If an IP phone is associated with multiple subnets where at least one is marked as an IP phone subnet it will appear as an IP phone throughout all these subnets (e.g. a device is associated with subnet 100 and subnet 101. Only subnet 100 has the IP Phone as its default device'. However, the device will appear as an IP Phone both on subnet 100 and subnet 101).*

## Hub/WAP Support

A new enhancement has been added to the network discovery module that identifies existing Hub/WAP devices.

A new catalog type has been created under the *Hub* functional type. The new item is called Access Point. When a switch port connectivity analysis implies that there is a hub/WAP device connected, the Discovery Module automatically creates a new inventory item of type Access Point. The new item appears in the link starting from the switch point. The Access Point will be added to the location tree where the outlet/link terminated panels are located. IP devices connected the Access Point will be discovered and will appear in the same location.

The following sections describe the process of identifying various switch ports in your network, how to view them, and also how to change their status.

**Note:**

*WAP is discovered by this feature only in cases where the MAC addresses of the devices connected to it are listed on the switch port.*

## Access Points

*Access Point* can be either a WAP or a hub and has one port connected to the switch port and one split port connected to all devices found on the switch port.

## Automatic Discovery of Hub and WAP (Access Points)

Before you can perform the automatic discovery step you must make sure that all switches are in the inventory.

Ensure that all outlets are in the inventory and are linked to where the Access Points are located. See the following section [How to View Links going through an Access Point](#).

To start the discovery hardware device operation, you must first run LAN Mapper and then the LAN server. This process discovers all IP driven devices in the network.

After the Discovery Module has run, all switch ports are identified and if necessary *Access Point* inventory items are automatically created and linked to the relevant switch.

## Auto Insertion of an Access Point

If there are more than two MAC addresses connected to a switch port via a single outlet port, then PV4E automatically creates an *Access Point* and places it between the outlet port and the discovered MAC addresses.

**Note:**

*If only two MAC addresses are discovered, and one is an IP phone, then an Access Point will not be created*

The default *Access Point* name is *Access Point* followed by the outlet name, for example:

AP\_outlet\_name

However, this name can be changed.

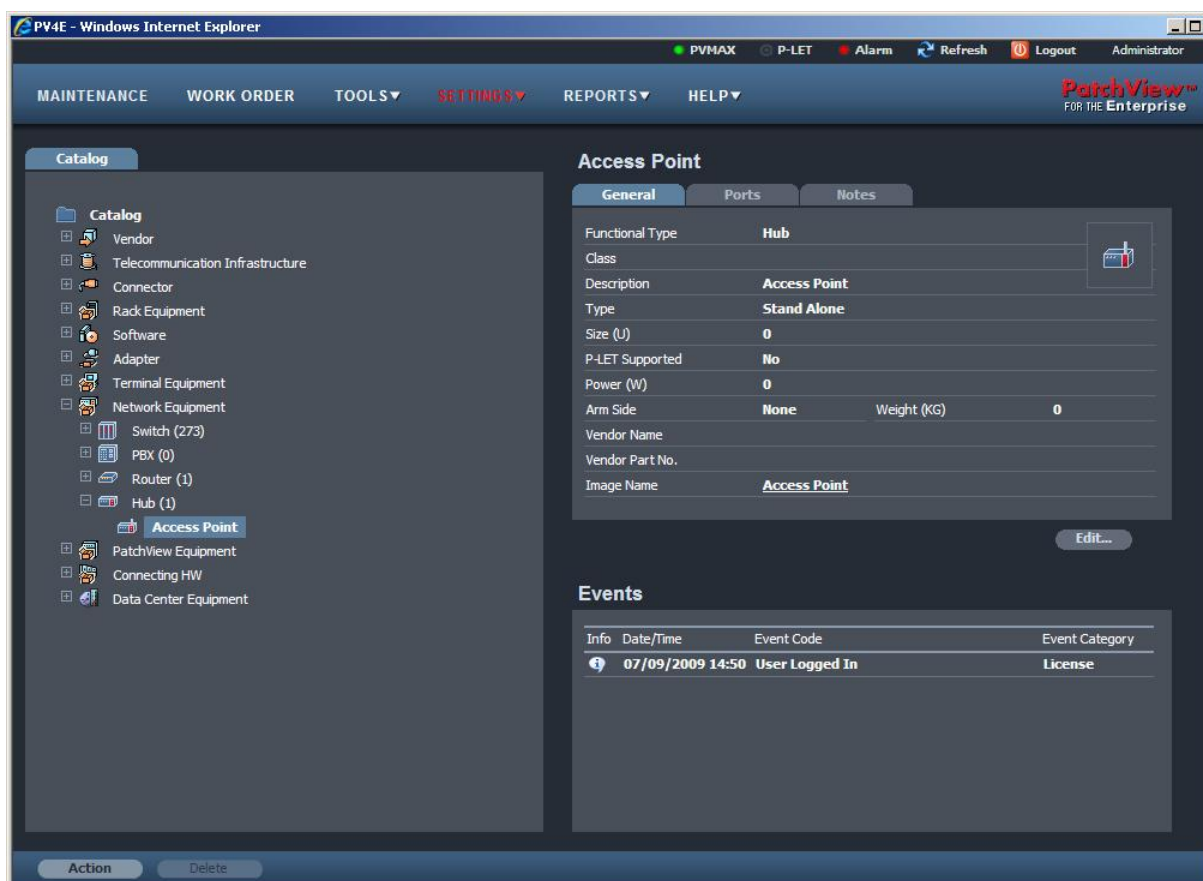
## Auto Deletion of an Access Point


If at anytime the number of MAC addresses associated with an Access Point is below two, once detected, the system will automatically remove the Access Point. A MAC addresses will no longer be associated with an Access Point when a device is manually deleted or discovered in another location.

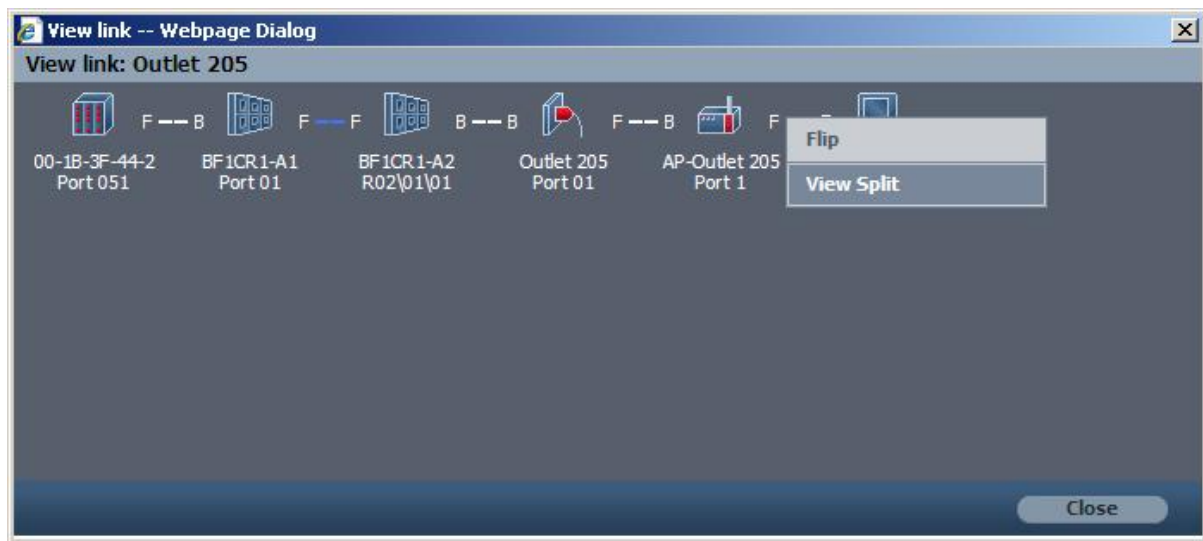
## How to View Links passing through an Access Point

The *View Link* screen displays all end devices that are connected to the *Access Point*. To view all links do the following:

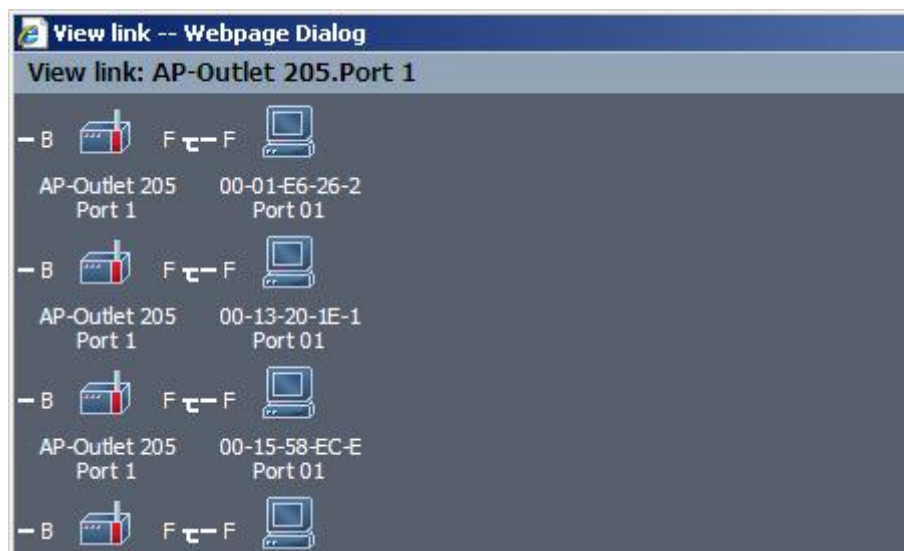
1. Stand on an *Access Point* in the Location tree.



Since an *Access Point* is connected to multiple devices, PatchView represents them in the view link pane, using the split link icon  .



A fork link (🔗) indicates that there are additional devices connected to the Access Point.



## Viewing the Status of a Switch Port

The following three new port statuses have been added to PV4E:

	Status	Description	Icon
1.	Hub	Represents a switch port that is connected to a hub or a WAP.	
2.	Error	Represents a switch port whose scan failed.	
3.	Undefined	PV4E cannot determine if a switch port is connected to a hub/WAP or if the switch port is a trunk.	

For more information on viewing port status, refer to the *PV4E User Manual – Chapter - Maintaining and Editing Links – Section: View Items, Panels, Ports and Link - Port Status Indicators*

When the Discovery Module cannot determine a switch port status, the port is marked as **Undefined**. This could be due to an outlet not being configured properly or switches not being defined properly in PV4E. Manual intervention is then required.

## Changing the Status of a Switch Port

### Note:

*Changing the status of a switch port from hub to trunk will cause all devices connected to the port to be deleted.*

Changeable ports in the *Status* field have a drop-down list. The status can be changed only from Hub, Trunk or Undefined.

The following tables summarize the change when a switch port status is changed.

## Switch Port Status Change

### Change generated by the Discovery Module

The following table shows the implications of the switch port status changed, by the Discovery Module.

Initial Status	After the Discovery Module	Implications
HUB	TRUNK	Delete Access Point and devices that were connected to it.
HUB	UNDEFINED	Port status will be changed.
TRUNK	HUB	An Access Point is added, and all MAC addresses associated to this switch port are connected to the Access Point.
TRUNK	UNDEFINED	Port status will be changed.
UNDEFINED	HUB	Access Point added, and link all devices connected to it
UNDEFINED	TRUNK	Change the status of port. Delete everything that was connected to the port.

### Change Generated by User

The following table shows the implications of the switch port status changed by the user.

Initial Status	Changed by User	Implications
----------------	-----------------	--------------

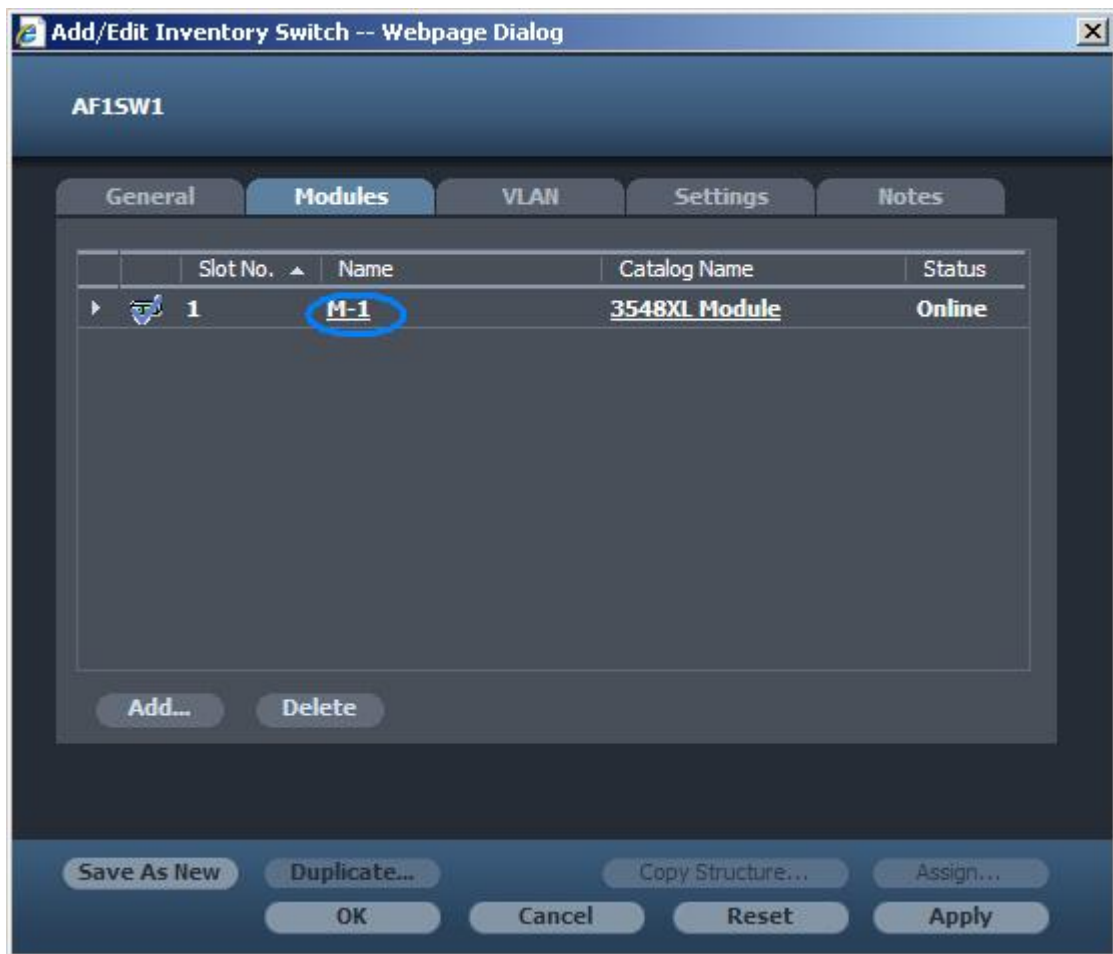
Initial Status	Changed by User	Implications
HUB	TRUNK	The Discovery Module will not override these settings.
HUB	UNDEFINED	The Discovery Module re-analyzes the port status during its next scan.
TRUNK	HUB	The Discovery Module will not override these settings.
TRUNK	UNDEFINED	The Discovery Module re-analyzes the port status during its next scan.
UNDEFINED	HUB	Port status changed. The Discovery Module will not override these values.
UNDEFINED	TRUNK	Port status changed. The Discovery Module will not override these values.

To change the status of a switch port, do the following:

1. Stand on the switch in the location tree.



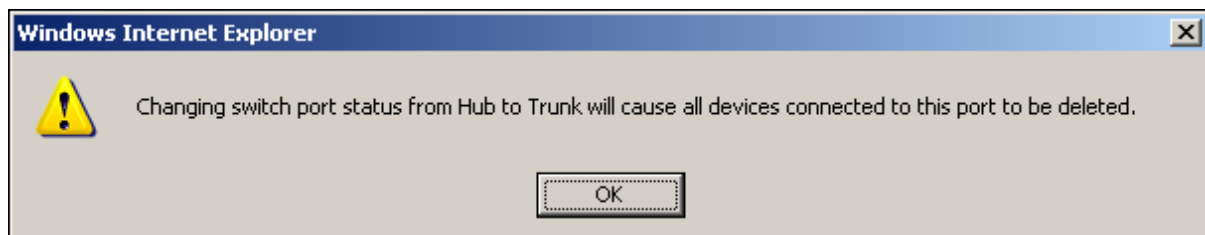
2. To change the switch details click **Edit**. The following *Add/Edit Inventory Switch* window opens at the *General* tab:



3. Click the *Modules* Tab. Click **Name**. The *Add/Edit Inventory Module* window opens:



- Click the *Ports* Tab. A drop-down arrow appears in the Status field for items whose status can be changed. Click the drop-down list and select one of three options. After you have changed the status, the following warning box appears.
- Click **OK** to continue or click the button to cancel the action.



## Support for Multi NIC Server Consolidation

Multi NIC Server Consolidation addresses the issue of multiple network adapters in terminal equipment devices.

The following sets out the basic NIC server consolidation for both manual mode and automatic mode.

### Automatic Mode

The automatic NIC consolidation into a single inventory item is performed by the Discovery Module. In general, the consolidation is text based; meaning, several NICs with a common text attribute can be merged into a single

inventory entity. Devices of the same catalog type that share the same location are consolidated according to pre-defined naming conventions. The naming conventions are set in PV4E's database.

This section defines the required input for the Discovery Module for automatic multiple NIC devices in the application in order to reflect the network structure in a more accurate manner.

## Prefix/Suffix

A generic table containing prefixes and suffixes needs to be supplied to RiT Technical Support team in order for them to enter the information into the PatchView database.

### Example

The Discovery Module searches for a prefix/suffix that matches the data information entered into the PV4E database.

The following table is an example of a prefix/suffix table:

Prefix	Suffix
xx	abc

The following list is returned after you have scanned your network:

server1abc

hostname2abc

xxhostname2abc

After the scan has run and has compared the results with the prefix/suffix table, the following results are returned:

server1

hostname2

hostname2

The scan has identified that: hostname2abc and xxhostname2abc belong to the same machine and will create them as a single inventory item.

## Ranking

A generic table containing ranking needs to be supplied to RiT's Technical Support team in order for them to enter the information into the PatchView database.

Ranking is an automatic resolution mechanism which is used to determine what will be the name of the consolidated device. The prefix\suffix with the highest rank is the one which sets the name of the consolidate device.

### Example

Consider a scenario where the Discovery Module detects two NIC cards:

1. hostname1.Primary

2. hostname1.Secondary

The following table contains two examples of ranks:



Suffix	Rank
*.Primary	2
*.Secondary	1

The consolidation module will consolidate the two NICs into a single device. Since \*.main has a higher rank then the name of the consolidated device will be hostname1.Primary .

## Discrepancies

A discrepancy normally occurs when a NIC does not fall into single predefined prefix/suffix criteria. In case of discrepancy the related NICs will not be consolidated and user intervention is required. See the following example.

### Example

Consider a scenario where the Discovery Module detects three NIC cards:

1. hostname1
2. hostname1.Secondary
3. hostname1.RiT.com

The following table contains two examples of ranks:

Suffix	Rank
*.RiT.com	1
*Secondary.RiT.com	2

When running the Discovery Module using the result for the third NIC card, the results can be one of the following: *Hostname1* or *hostname1.Secondary*.

The result causes discrepancies in the consolidation process of the third NIC.

Any discrepancy will be logged into the application's log and will require user intervention (i.e. manual consolidation)

## Manual Mode

In certain scenarios, the automatic NIC consolidation will not be applicable. This is typically when a NIC of specific device does not fall into the predefined textual criteria. In these instances, you will be able to manually select several terminal equipment devices and merge them into one.

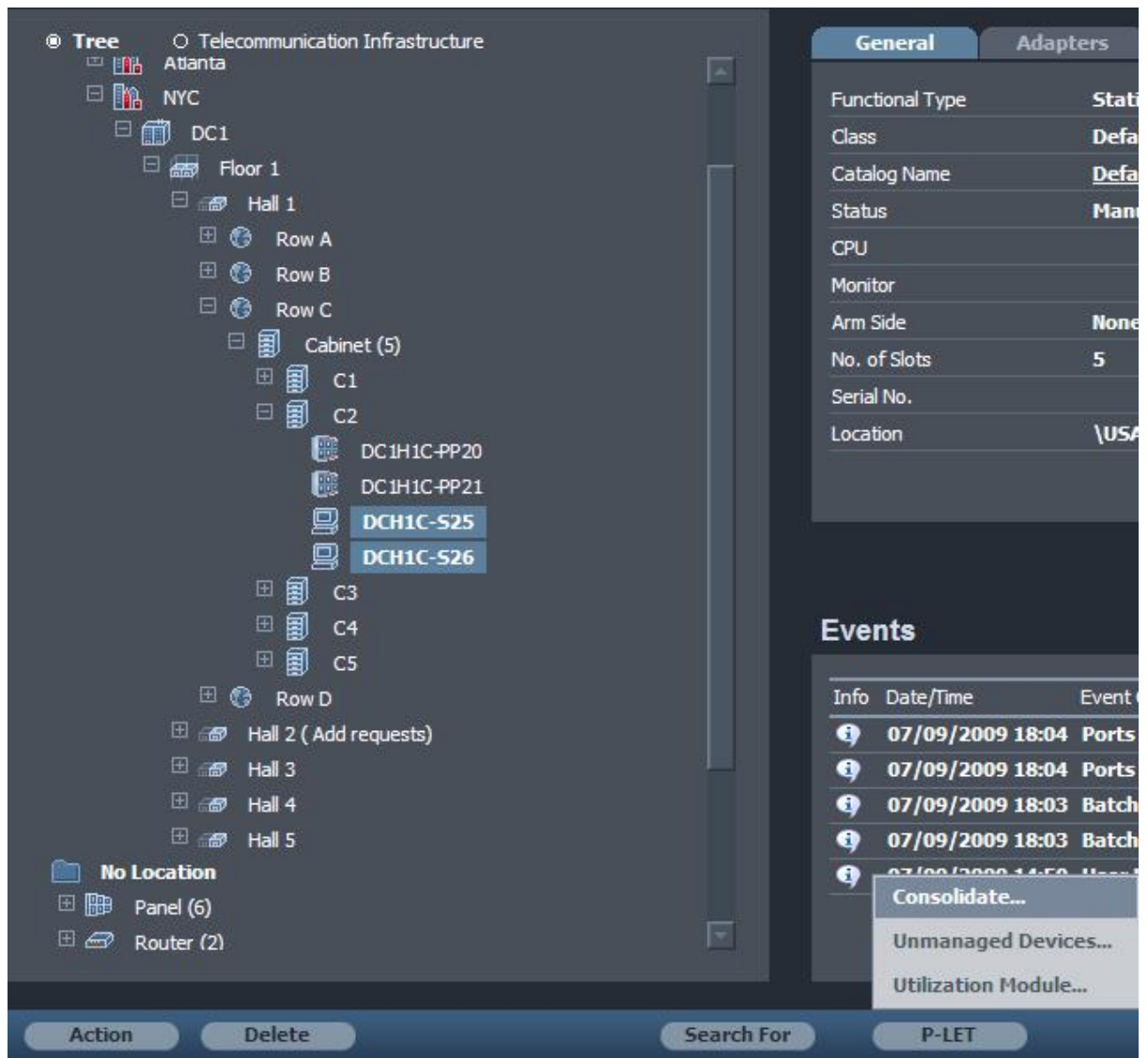
Follow steps explain how to consolidate devices manually:

- Select the candidate devices for consolidation from the location tree (multi selection is done by holding down the Ctrl button and left clicking the hostname).

### Note:

*The selected devices must reside in the same location and must be of the same catalog type*

- Click the *Discovery Module* at the foot of the screen and select the *Consolidate* menu item

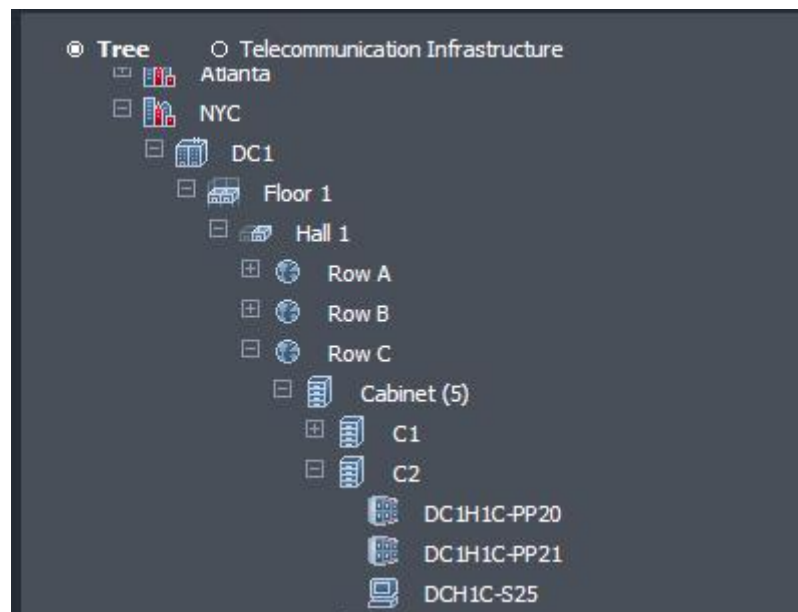


- The following screen appears:



- The *Consolidate Devices* screen lists the name of all the devices which have been selected for the consolidation process. The order of the names is according to the order in which they were selected in the location tree. The name of the consolidated device will be the name with the arrow to its left. Select name before clicking the *Consolidate* button.
- Click **Cancel** to abort the operation or **Consolidate** to perform the multi NIC consolidation.
- When the consolidation process ends, all the devices in the location tree will be merged into a single device. The NIC cards of the consolidated device appear in the Adapter tabs of the new device.

The following figures illustrate the final result:



**DCH1C-S25**

General Adapters Software Owner Notes

Slot	Functional Type	Name	No. of Ports	MAC
1	NIC	10 Base-T	1	00-00-00-00-00-01
2	NIC	10 Base-T	1	00-00-00-00-00-01

#	Service	S	ID	IP
1	Any Service		Port 01	

Locate Ping Edit...

- The manual consolidation does not allow you to run this procedure for a single NIC card. Any attempt to perform this operation will result in the following error message:



## Automatic Virtual Server Support

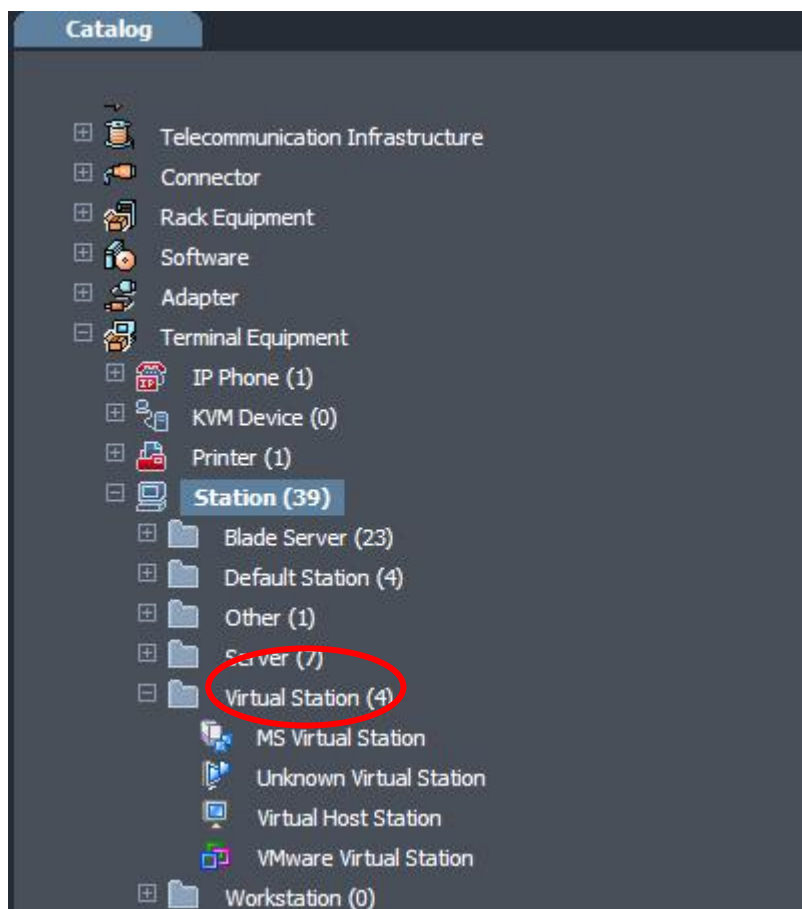
The *Automatic Virtual Server Support* feature enables the discovery of virtual machines and their host server/PC as well as consolidation of virtual machines with their physical host server.

This solution can be configured to support different Virtual machine vendors, for more information please contact RiT customer support team.

### How it Works

Virtual Server support identifies virtual computers based on the MAC address.

If a computer is identified as a virtual station, it will have a catalog item which can be found in the PV4E catalog. See the following:



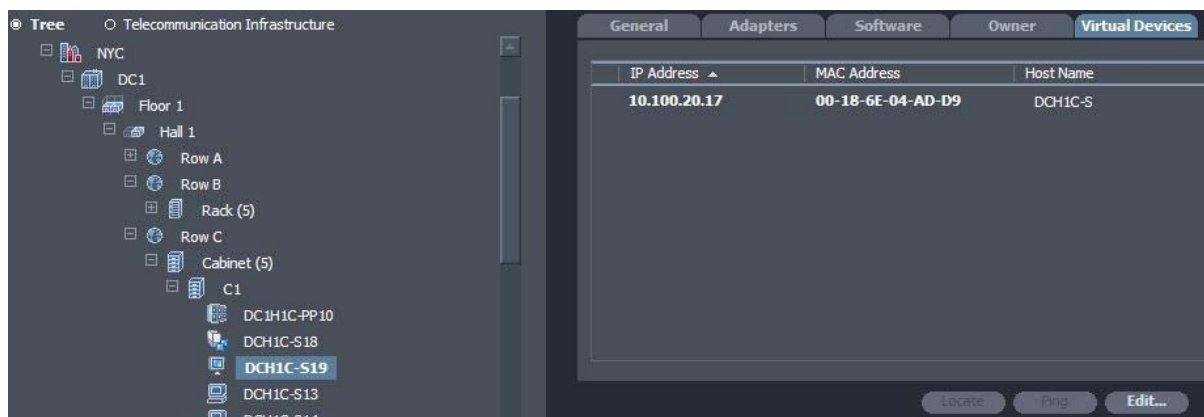
The *Content* tab displays all stations associated to the virtual station.

### Virtual Machine Consolidation

The system will automatically consolidate a virtual machine with a physical server/PC in cases where a virtual MAC addresses and one physical MAC address are identified together.

The host server/PC is added using the catalog item – Virtual Host station.

Select the Virtual Devices tab to view all devices associated with the virtual server. See the following



You can search for a consolidated host server/PC. Click **Search For** from the *Terminal Equipment* menu and choose **Station**.



Use the search parameters as follows:


Station			
Name	<input type="text"/>	Location	<input type="text"/> ...
Class	<input type="text" value="Virtual Station"/>	User ID	<input type="text"/>
Catalog Name	<input type="text" value="Virtual Host Station"/>	User First Name	<input type="text"/>
MAC Address	<input type="text"/>	User Last Name	<input type="text"/>
		Include Sub Location	<input checked="" type="checkbox"/>
		IP Address	<input type="text" value="0 . 0 . 0 . 0"/>
		Secure Link	<input type="checkbox"/>

### Note:


The *Search for* works for physical servers/PCs only.

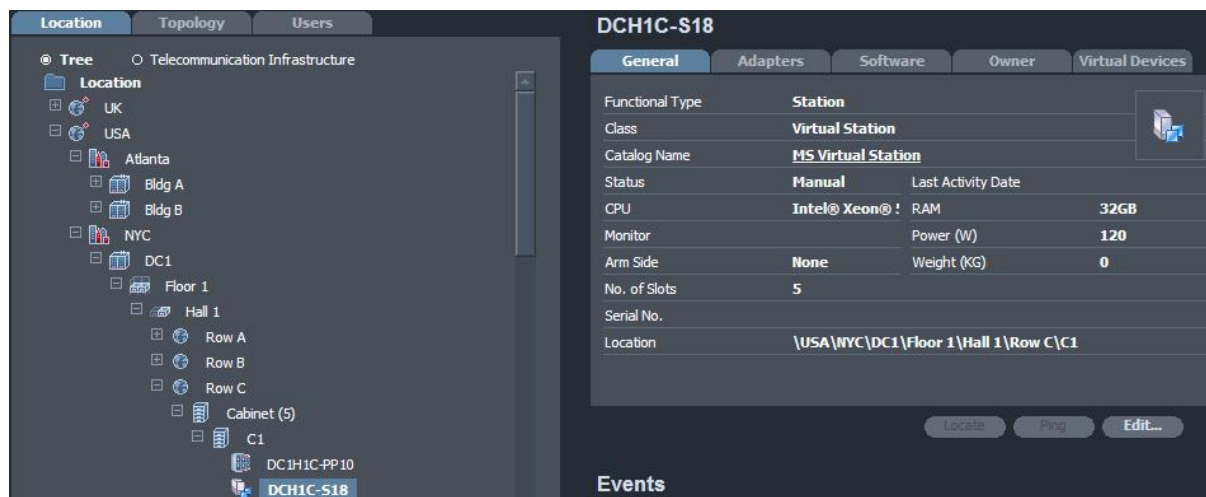
## Un-Consolidated Virtual Machine

As long as the virtual machines are not consolidated, they appear in the location tree with the following catalog items as described below.

A VMWare station is identified in the Location tree by the  icon.



An MS Virtual Station is identified in the Location tree by the  icon



Users can search for an un-consolidated virtual machine. Click **Search For** from the *Terminal Equipment* menu, choose **Station**.

Use the search parameters as follows:

Station					
Name	<input type="text"/>	Location	<input type="text"/>	Include Sub Location	<input checked="" type="checkbox"/>
Class	<input type="text" value="Virtual Station"/>	User ID	<input type="text"/>	IP Address	<input checked="" type="checkbox"/> 0 . 0 . 0 . 0
Catalog Name	<input type="text"/>	User First Name	<input type="text"/>	Secure Link	<input checked="" type="checkbox"/>
MAC Address	<input type="text"/>	User Last Name	<input type="text"/>		

#### Note:

The *Search for* works for unconsolidated virtual machines only.



## Chapter 10 – Blade Servers

PV4E V6.0 introduces enhanced support for *Blade* Servers and related items.

This version supports three types of *Blade* Server enclosures:

- Enclosures equipped with connectivity (pass-through) modules
- Enclosures equipped with switching modules
- Enclosures equipped with any other type of connectivity

The above *Blade* servers can be distinguished by the way they are connected to the network.

This chapter describes the *Blade* servers and *Blade* chassis support in the PV4E application.

### Terms

<b>Chassis/Enclosure</b>	-	A physical container of <i>Blade</i> servers that supplies connectivity, power and management to the <i>Blade</i> servers.
<b>Blade/Blade server</b>	-	A server machine for high density componential environment.
<b>Bay</b>	-	A physical area within the chassis that hosts a single <i>Blade</i> and are positioned at the front of the chassis.
<b>Slot</b>	-	A physical area within the chassis which hosts connectivity and management modules (depending on the chassis type). And are positioned at the rear of the chassis.

## Pass-through Modules

*Pass-through* is a new connectivity type that has been added to the PV4E application. It is used for both copper and fiber and acts as a connecting hardware panel which is installed within the *Blade* enclosure.

The back ports are wired through the chassis backplane to the chassis server bays.

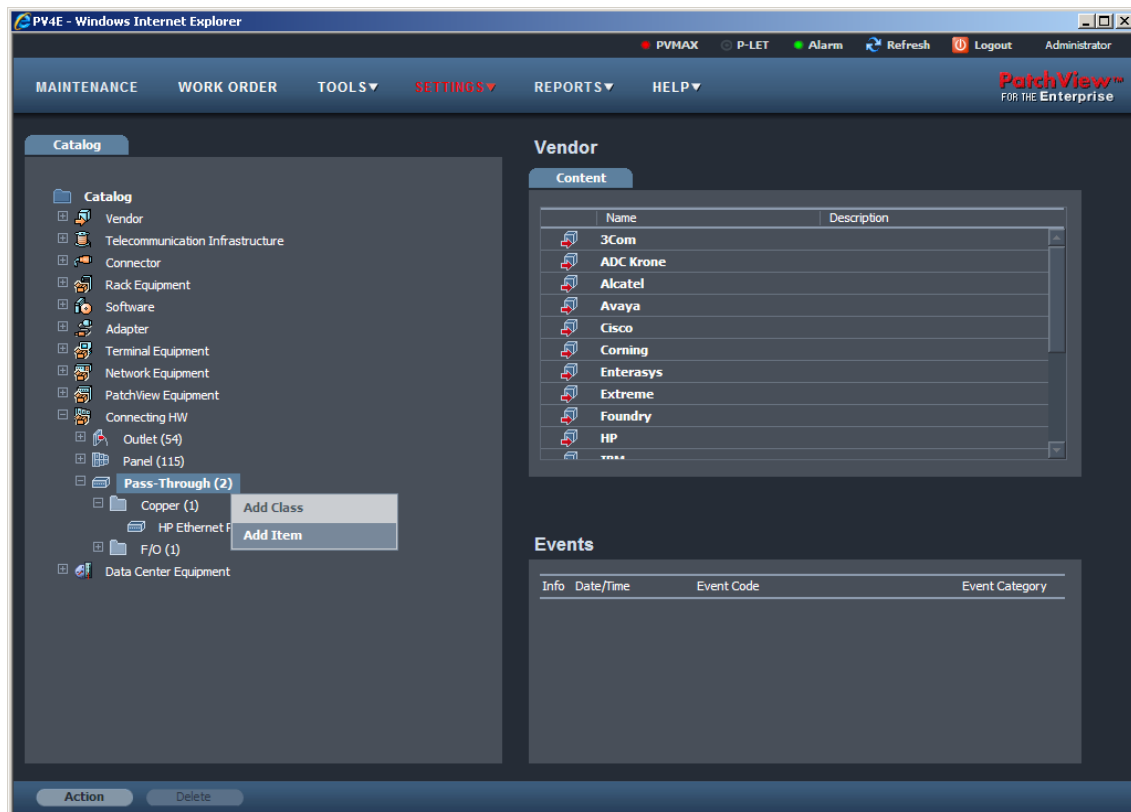
### Note:

*A Pass-through connectivity type cannot be seen in the location tree and will not appear on the menu for adding a pass-through.*

### Adding an Item to Pass-through Class

- > **To add a new item type to the *pass-through* class, do the following:**
  1. Go to the main *Settings* tab. The *Catalog* tree is displayed:





Fig

2. Expand the *Connection HW* branch until you arrive at *Pass-through*.
3. Stand on *Pass-through*, right-click and select **Add Item** from the context menu.
4. The following *Add/Edit Catalog Pass-Through* screen opens:

The screenshot shows the 'Add/Edit Catalog Pass-Through' dialog box. The 'General' tab is active, displaying the following fields:

- Name: [Empty text box]
- Functional Type: [Pass-Through]
- Class: [----choice----] (with an 'Add' button)
- Description: [Empty text box]
- Vendor Name: [----choice----] (with an 'Add' button)
- Vendor Part No.: [Empty text box]
- Image Name: [Default Connecting Hardware] (with a dropdown arrow)

At the bottom of the dialog, there are buttons for 'Save As New', 'OK', 'Cancel', 'Reset', and 'Apply'.

5. Enter the following information in the *General* tab:

- Name:* Enter new item name.
- Functional Type:* Pass-through is entered by default and cannot be changed.
- Class:* From the drop-down menu, select the class, either Copper or fiber-optic.
- Description:* Enter a description
- Vendor Name:* From the drop-down list, select the name of the vendor. You can click **Add** to enter a name that is missing from the list.
- Vendor Part Number:* Enter part number, if known.
- Image Name:* Enter image name or click ellipsis (...) to view full list.

6. In the *Ports* tab – Enter the name of the port and select the connector from the drop-down menu – this is applicable for both front and back ports.

**Add/Edit Catalog Pass-Through -- Webpage Dialog**

General Ports Notes

			Front		Back	
	#	Service	Name	Connector	Name	Connector
▶	1		Front 01	RJ-45	Back 01	Internal

Add Remove ---select service-- Port Naming.. Port Duplicate

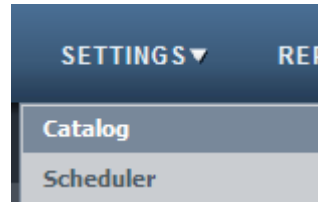
Save As New OK Cancel Reset Apply

## Defining a Chassis in the Catalog

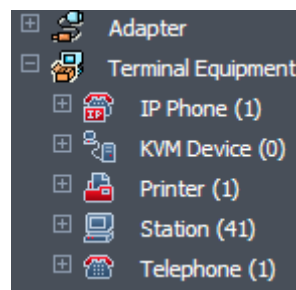
The following section of this user guide explains how to add enclosure items to the *Catalog*.

> **To define a new chassis in the *Catalog*, do the following:**

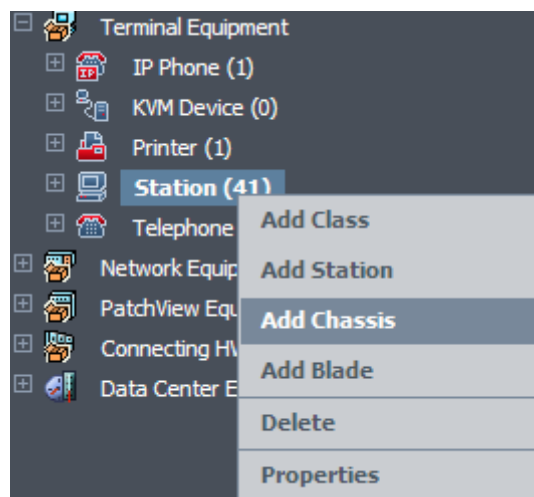
1. From the *Setting* menu select **Catalog**



2. From the *Catalog* tree click the *Terminal Equipment* node. Expand until you see the *Station* node. Alternatively, you can drill down to any of the classes below a *Station* node before you move to the next step.



3. Stand on *Station* and right-click – select **Add Chassis** from the context menu:



The following screen opens at the *General* tab:

**Add/Edit Catalog Station -- Webpage Dialog**

**C7000 Chassis**

General Settings Modules Data Cooling

Name: C7000 Chassis

Functional Type: Station

Class: ---choice--- Add

Description:

Connectivity Type: Pass-Through

Weight (KG): 0 Power (W): 0

Arm Side: None Size (U): 1

Type: Chassis Vendor Part No.:

Vendor Name: ---choice--- Add

Image Name: Default Blade Server ...

Save As New OK Cancel Reset Apply

## General Chassis Settings

1. Enter the following information in the General tab:

Name	The chassis Model Name
Class	"Blade Server" by default, can be set to another existing class or a new user defined class
Description	Description for the blade chassis. This is a free text field.
Connectivity type	Specify the way in which the enclosure is connected to the network. You can select any of the suggested values : <ul style="list-style-type: none"> <li>• Pass- Through</li> <li>• Switching</li> <li>• Other</li> </ul>
Weight (KG)	Enter the weight of the chassis enclosure
Power	Enter the power consumption of the enclosure

Size	Specify the height of the chassis in Us
Arm side	Specify the type of cable management arm of the cassis (if exists). The default value is none
No. of Bays	Specify the number of bays incorporated into the chassis. This filed is applicable only if the connectivity type specified above is either <i>Switching</i> or <i>Other</i>
Vendor Name	Enter the Vendor name from the drop-down menu
Image Name	Enter image name – this is an editable field

2. Click **Apply** to save the newly entered information.

## Setting the Bay Layout in the Chassis

### Note:

*This section applies only for chassis with a Pass-through connectivity type.*

3. Edit the chassis you want to change (by right clicking it->edit or pressing the edit button). Click the setting tab to enter information about the Bay layout:

**Add/Edit Catalog Station -- Webpage Dialog**

**C7000 Chassis**

General Settings Modules Data Cooling

No. of Bays: 16

No. of Rows: 2

No. of management slots: 0

No. of connectivity Mod. Slots: 0

No. of ports per bay: 4

Bay Direction: ☒ Left To Right ☐ Right To Left

Bay Order: ☒ Top to bottom ☐ Bottom to top

Save As New OK Cancel Reset Apply

4. In the *Number of Bays* field set the number of bays in the chassis using the up/down arrows or manually enter the number.
5. In the *Number of Rows* field enter the number of rows over which the bays are distributed using the up/down arrows or manually enter the number.
6. Select the applicable radio button next to the *Bay Direction* field to determine whether the bays ordinal numbers are set from right to left or vice versa.
7. Select the applicable radio button in the *Bay Order* field to determine whether the bays ordinal numbers are set from top to bottom or vice versa.

**Note:**

*This field is relevant only if the No. of Rows is more than 1.*

## Setting the Number of Connectivity Modules and Management Modules

**Note:**

*This section applies only for chassis with a Pass-through connectivity type*

1. Select the *Settings* tab.
2. In the *Number of Management. Slots* field, enter the number of the management modules using the up/down arrows or manually enter the number.

3. In the *No. of connectivity Mod. Slots* field enter the number of connectivity modules using the up/down arrows or manually enter the number.
4. Click **Apply**.

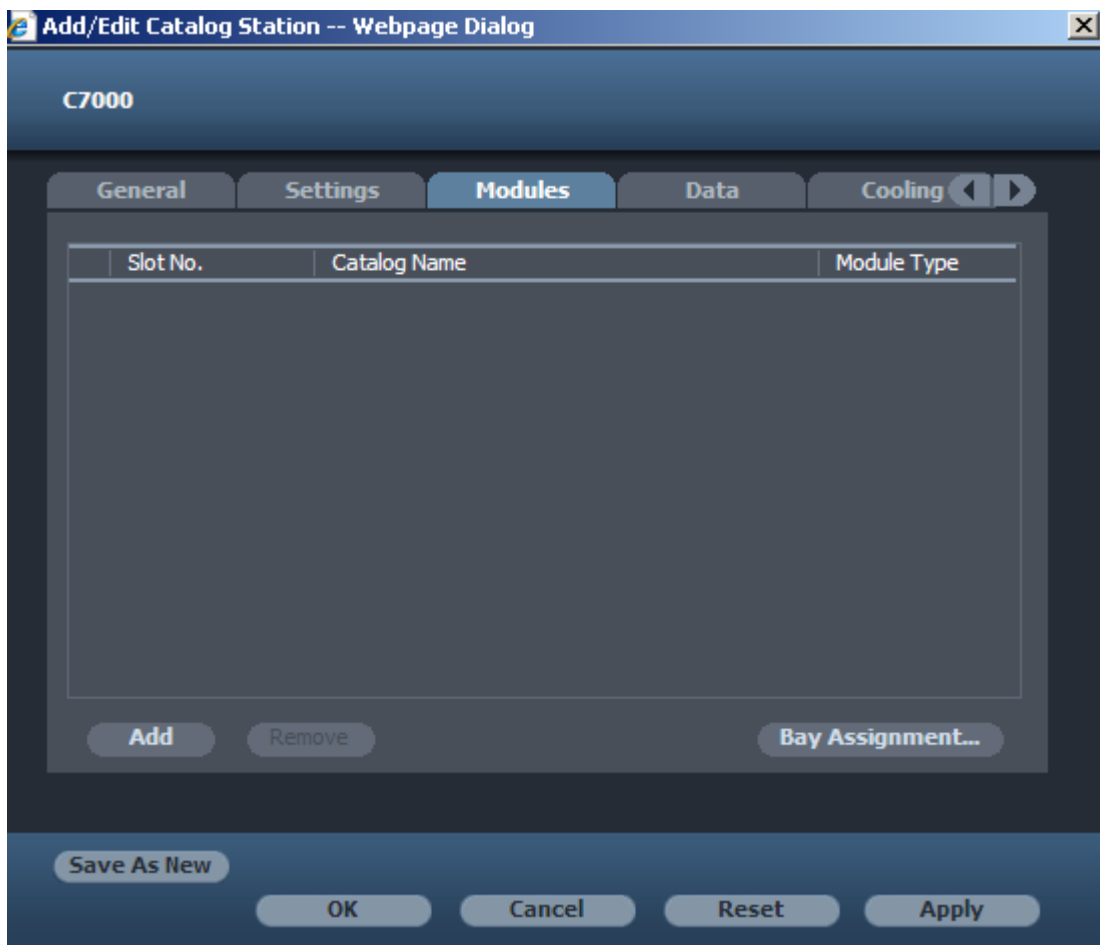
## Adding Modules to a Chassis

### **Note:**

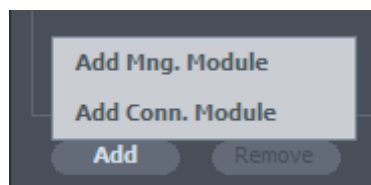
*This section applies only for chassis with a Pass-through connectivity type.*

1. Go to the *Modules* tab of the enclosure and click **Edit**.

The following screen opens:



2. Click **Add**. The following menu opens:



### **Note**

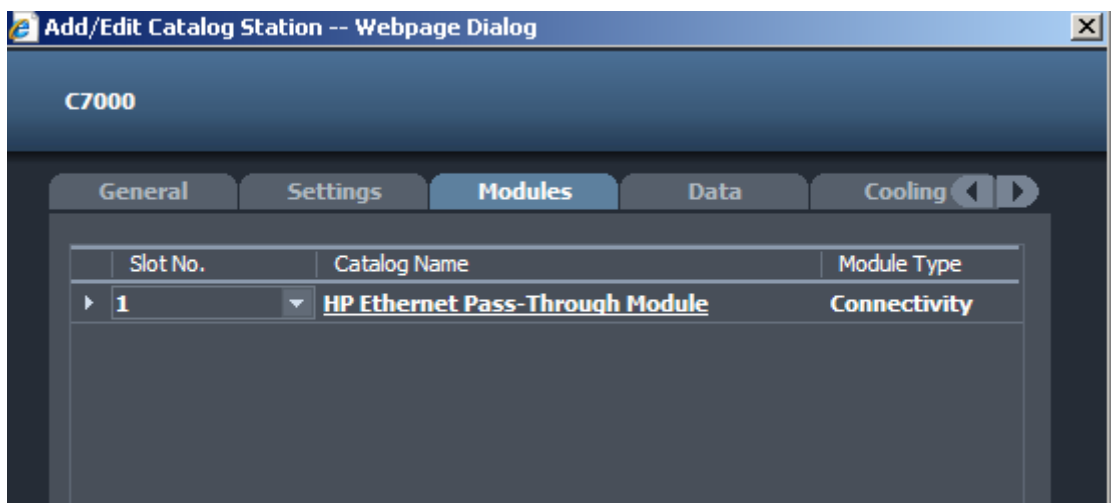
*If the number of management/connectivity modules was set to 0 then the respective menu items are disabled.*

3. Select **Add Conn. Module** from the context menu.

4. The following screen opens:



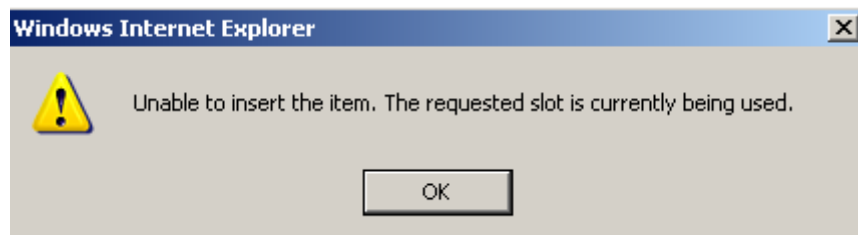
5. Select the required connectivity module and click **OK**.



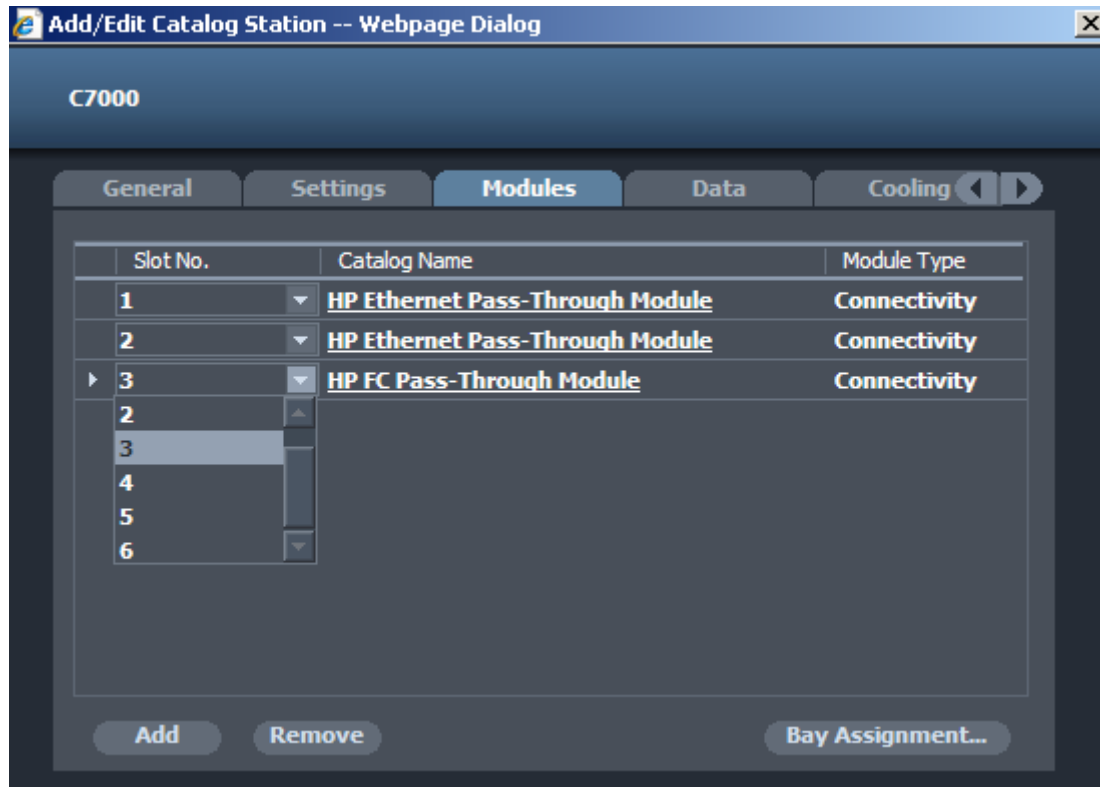
The new connectivity module has been added. Click **OK**.

6. Whenever you add new connectivity module the system will automatically offer you the next available slot number.
7. If you attempt to place two connectivity modules into the same slot number, the following error dialog box appears





8. Change the connectivity modules using the drop-down menu to assign a new slot. After you have made the changes, click **Apply**.



9. Repeat these steps for each connectivity module.

## Linking Bays to Connectivity Modules

### **Note:**

*This section applies only for chassis with a Pass-through connectivity type.*

PV4E helps you to document the internal links between connectivity modules and bays. The connectivity between connectivity modules and bays is hard wired and has to be set once in the catalog. Usually every bay is fed with links from several connectivity modules. This process is also required for the purpose of placing blade in the right bays automatically by the discovery module.

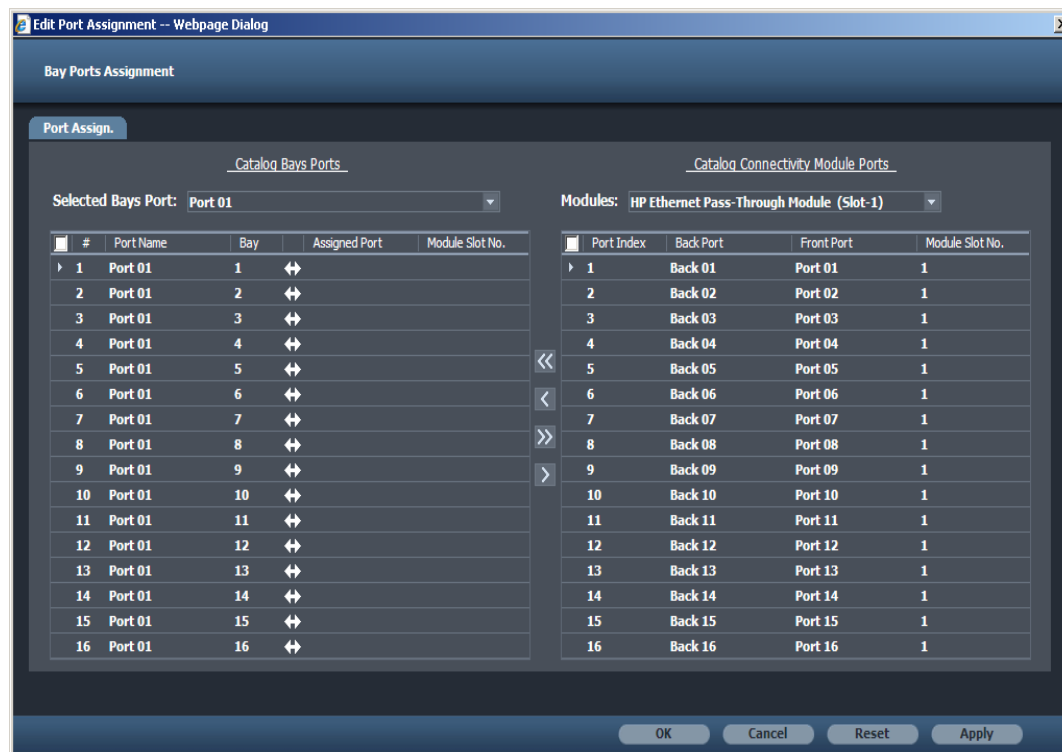
Before you link bays to connectivity modules, you must first define the maximum number of ports per bay. To do this, perform the following steps:

In the *Settings* tab enter the number of ports per bay in the "No. of ports per bay" field. This field sets how many links can be connected to a specific bay.

After you have completed this step do the following:

1. Go to the *Modules* tab of the relevant chassis. Click **Bay Assignment**.





The following screen opens:



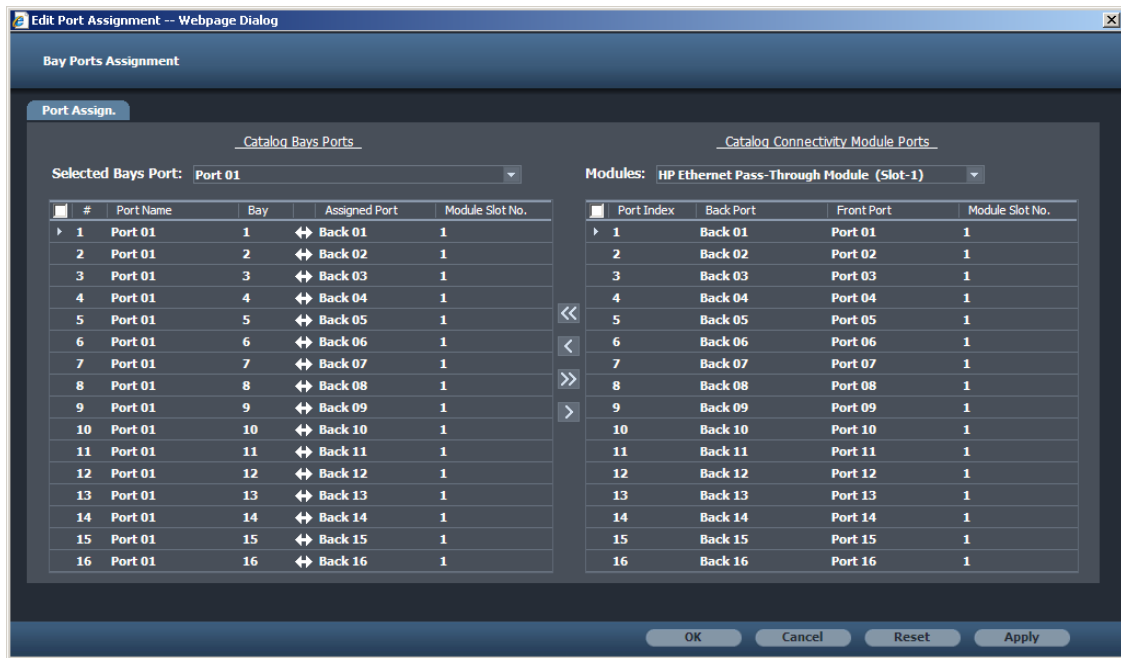
The left-hand side of the screen is the *Catalog Bays Port*: Use the drop-down menu to select the port number. This sets the port for each bay that is going to be connected to the connectivity module on the right-hand side.

The right-hand side is the *Catalog Connectivity Modules Ports*: The drop-down list specifies the connectivity module that is going to be connected to all the ports on the left hand side of the screen.

An explanation for the arrows between the two screens is as follows:

-  Associates all ports to a the selected connectivity
-  Associates selected ports – to select ports hold the Ctrl key and select with mouse
-  Disassociates all ports to a the selected connectivity
-  Disassociates selected ports – to select ports hold the Ctrl key and select with mouse

At the end of this process you should have documented the chassis' internal wired connections between the connectivity modules and the bays. The following screen illustrates the relations between one connectivity module and the bays in the enclosure:



## Adding Adapters to the Chassis

### **Note:**

*This section applies only for chassis with a 'Switching' or 'Other' connectivity type.*

1. Edit the chassis you want to add adapters to
2. Click the *Adapetrs* tab.
3. Click **Add** to add the adpaters.
4. select functional type, name, No of ports, Description
5. Click **Add**
6. Click **OK/Apply**

## Adding a Blade Chassis and Blades to the Inventory

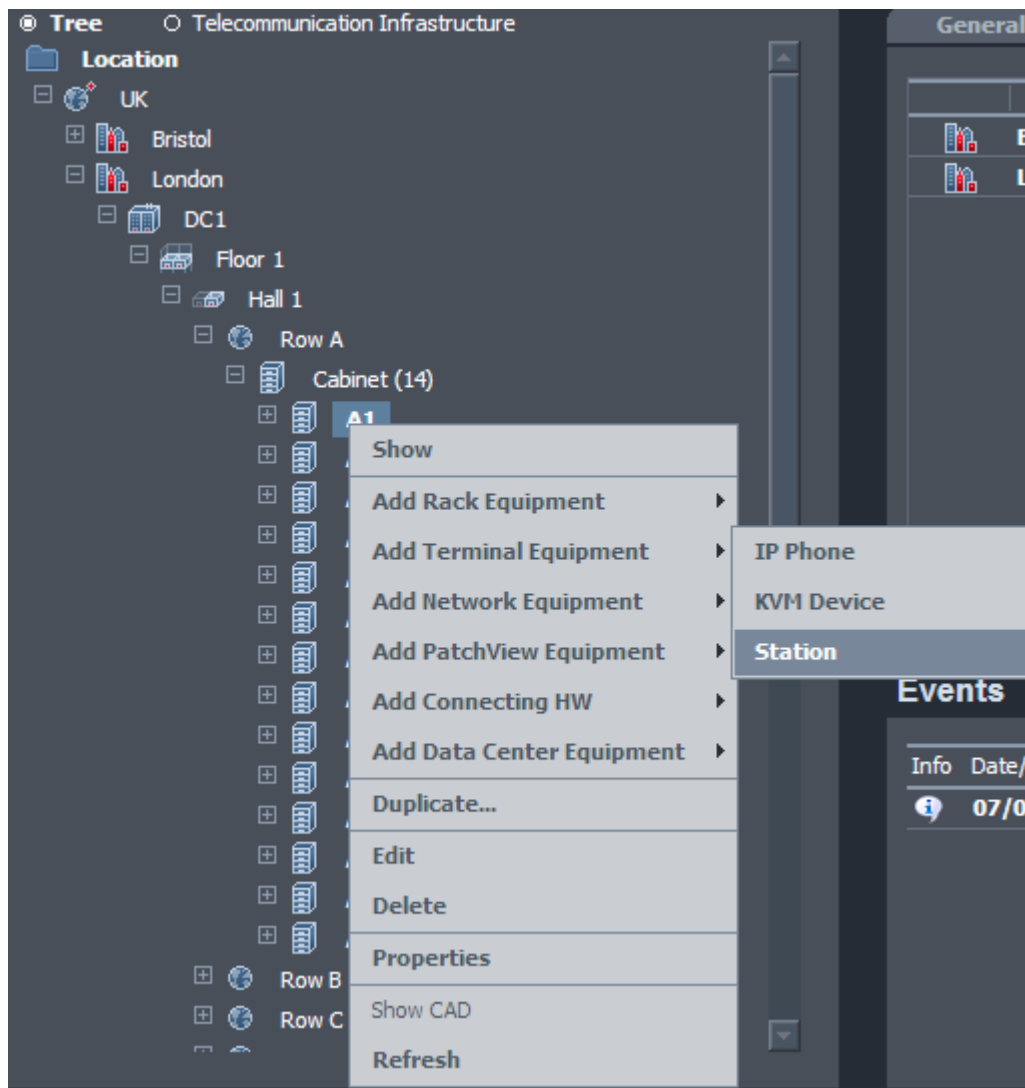
The following section of this user guide explains how to add the following items to the Inventory:

- A *Blade* Enclosure
- *Blades*

### Adding a Blade Chassis

To add an enclosure to the inventory, do the following:

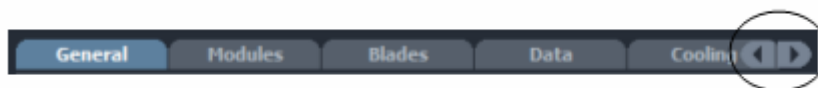
1. From the *Maintenance* tab stand on the *Location tree* and select either a cabinet or rack. Right click and select **Add Terminal Equipment > Station**.



2. The following screen opens:

**Note:**

When entering the Catalog Name for a catalog item in the above Add/Edit Inventory Station screen, new tabs appear on the tab bar. Use the forward/backward arrows to view all tabs.

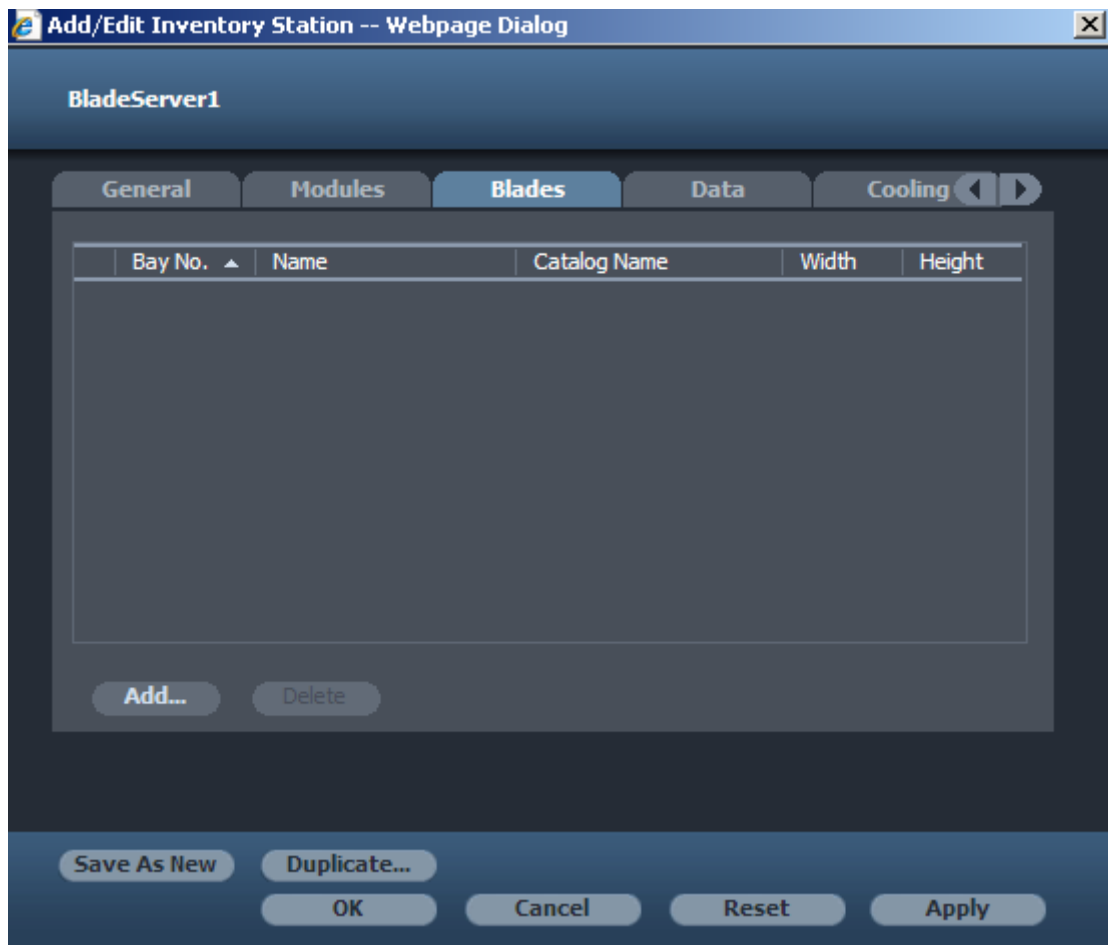


3. Enter the name of the enclosure and, using the drop-down menus where applicable, enter information.
4. If the selected enclosure has a *pass-through Connectivity* type then the *Modules* tab appears. If the selected enclosure has a *Switching* or *Other* connectivity type then the *Adapters* tab appears. Click **Apply**.

## Adding a Blade to an Enclosure

To add a *Blade* to an enclosure, do the following:

1. Click the *Blades* tab of the *Add/Edit Inventory Station* screen. The following screen opens:



2. Click **Add**. The following screen opens:

**Add/Edit Inventory Station -- Webpage Dialog**

**General** | Adapters | Notes

Name:

Functional Type:

Class:  **Add**

Catalog Name:  **Add**

CPU:  RAM:

No. of Slots:  Power (W):

Serial No.:  Type:

Chassis Bay No.:

Location:

**Save As New** | **OK** | **Cancel** | **Reset** | **Apply**

- Enter the details of the *Blade*, using drop-down menus where applicable and click **OK**. The following screen opens – the *Blades* have been added and can be viewed in the *Blades* tab.

Bay No. ▲	Name	Catalog Name	Width	Height
1	Blade 1	BL460c	1	1

## Auto Populating Enclosure with Blades by the Discovery Module

The *Discovery Module* supports the detection and creation of *Blades* within a chassis. This is only applicable for chassis's with the *pass-through connectivity type*.

For this enclosure type, the *Discovery Module* recognizes which network adapter creates a specific *Blade* and consolidates it into a single device. It then places it in the correct bay.

## Setting Links and Viewing Links to *Blades*

To view the entire connectivity of a chassis; Right-click a chassis and select the *View Link* menu item. You will be able to view the connectivity for all the *Blades* within the selected chassis in the *View Link* pane.

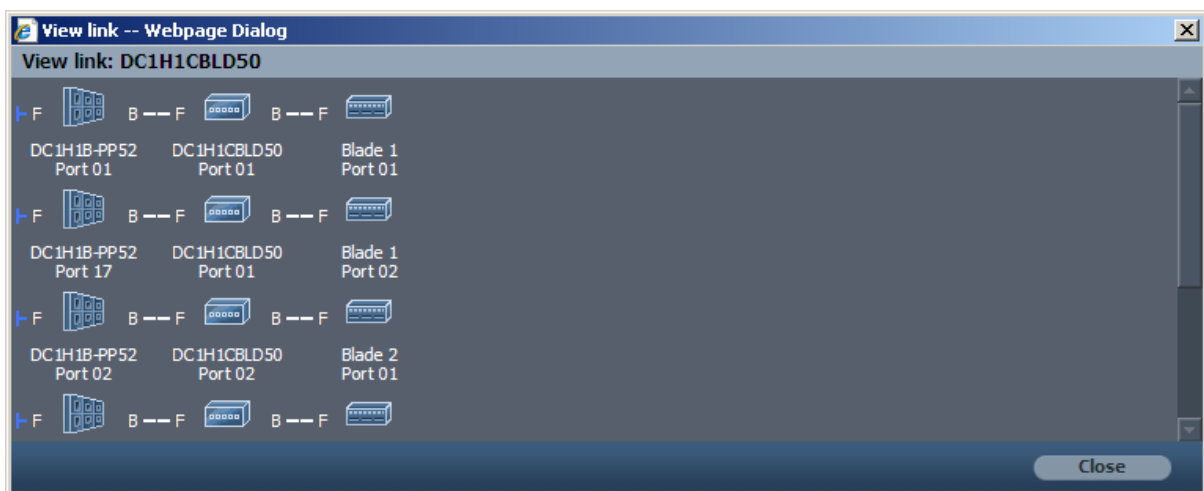
In order to view the connectivity of a specific *Blade*, select the *Blades* tab of a specific chassis. Right-click the relevant *Blade* and select the *View Link* menu item. The connectivity of the selected *Blade* is displayed in the *View Link* pane. If the *Blade* server has *pass-through Connectivity* modules then you will also be able to see the links routed through the relevant connectivity module.

For enclosures with pass through connectivity module you can also view links for the connectivity modules. Select the *Module* tab, right-click the relevant connectivity module and select the *View Link* menu item. The connectivity of the selected *Connectivity* module is displayed in the *View Link* pane.

### Note:

*The above steps are also supported for viewing links of multiple Blades or Connectivity modules.*

For more information about setting and viewing links, please refer to the *Creating and Editing Links* chapter of this document.





## Chapter 11: Security

PV4E contributes to the security of your network. PV4E can respond immediately to any unauthorized changes on the physical layer of the network.

### Device Locator

You can detect the precise and on-the-fly physical location of devices on the network. There are essentially two main scenarios for using the device locator:

- **Responding to an intrusion detection system (IDS) alert**  
An IDS may alert of the existence of an unauthorized device in the network. The IDS provides the IP address of this device. Using the Device Locator, you can pinpoint to the precise location of this device.
- **Verifying the location of an existing device**  
For a device that is already defined in the Inventory and you suspect that it may have recently been moved in an unauthorized manner, you can search in real-time for its actual physical location. For example, a user has moved offices without prior coordination with the administrator and the administrator wishes to determine the new location of the station.

You need an additional license to use the Security Module. If you presently do not have this license, please contact your local RiT representative.

> **To locate a Device**

You can locate any end-device (terminal equipment) in the Inventory. If you are aware that a device has moved location, use this option to find the actual location.

To find the location of a device – Station, IP Phone or Printer – right click on the device in the Location tree and choose the **Locate** option.

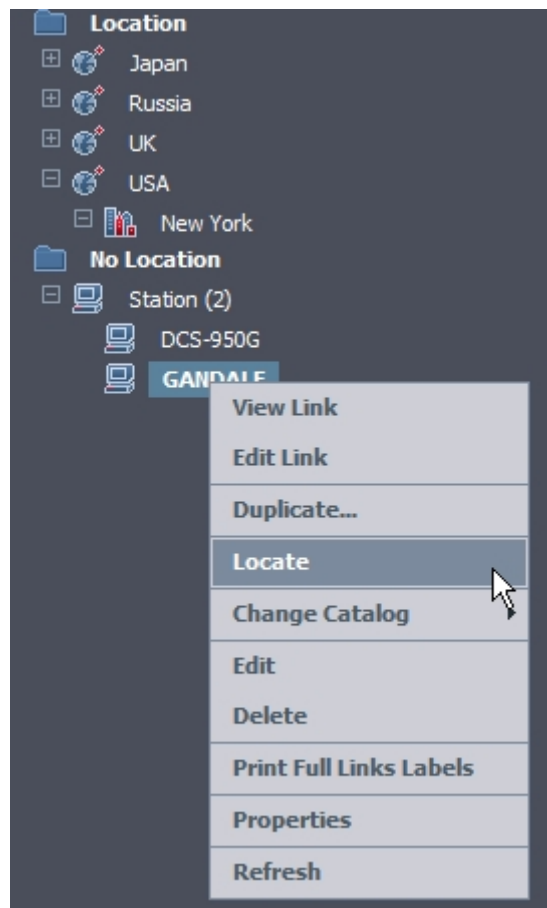


Figure 329 - Locate Terminal Equipment

If the selected device does not have an IP address, the system returns the message: *The station doesn't have an IP address. Action can not be done.*

If the IP address is present and the device is found, a message box appears.



*Figure 330 - Event Details Message Box*

An alternative way to locate terminal equipment is to click on the **Locate** button in the terminal equipment's Property pane. If present, the IP address is displayed in the properties of the terminal equipment.

GANDALF									
General		Adapters		Software		Owner		Notes	
Functional Type	Station								
Class	Default Station								
Catalog Name	Default Station								
IP	15.1.1.110								
Status	Manual		Last Activity Date		1/26/2009 5:51				
CPU			RAM						
Monitor			Power (W)		0				
Arm Side	None		Weight (KG)		0				
No. of Slots	5								
Serial No.									
Location	\No Location								
				Locate		Ping		Edit...	

Figure 331 - Station Properties Showing Locate Button

#### To Run the Device Locator

Run the device locator when you are looking the specific physical location of a device in your network. For example, an IDS provided you with the suspected IP address as an intruding device. The Device Locator finds the exact physical location of this device.

1. From the **Maintenance** module, click on **Tools** and select **Device Locator**.  
The Device Locator dialog appears.
2. Enter the IP address of the unauthorized device. To locate more than one IP address at a time, click the **Add** button to include additional IP addresses to be searched.

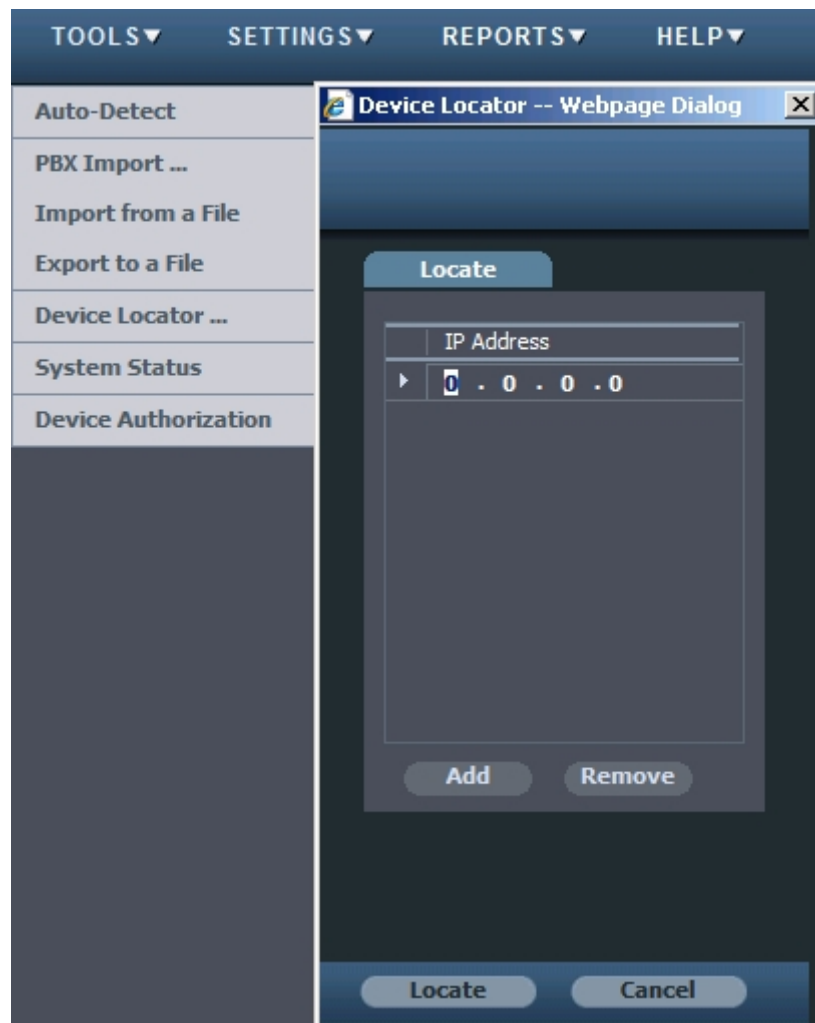


Figure 332 - Device Locator

3. Click the Locate button to detect the location of the device(s) with the given IP addresses.  
The system informs you that the task is being performed in the background and may take several seconds. The time depends on the size of the network.
4. When the search finishes, the results of the search for the IP address appear in an Event Detail dialog.

In cases where a device is connected directly to a patch panel, or there is no full link, the device locator provides the last connecting hardware in the link as the device location.

Once the device has been identified, take the appropriate action to determine if the intruding device is valid or not.

## Chapter 12: Importing PBX Data

PV4E considers a PBX as offline equipment. You can update the PBX information to ensure that PV4E continually represents the present network situation. PV4E takes the information acquired from the PBX ports and maps the full connectivity between the PBX switch port and the telephone end device. This includes, for example, the phone's physical location.

With a PBX module license, you can import the PBX data directly into the PV4E database. A PBX creates a data dump file containing the connectivity information of the different ports. PV4E requires the importing of a simple file format that is based on this data file. You may need to modify this file slightly to make it ready for import.

**Note:**

***You must have previously defined the PBX in the Catalog.***

You must follow the various import preparation steps before performing the actual import procedure of the PBX data.

Depending on the frequency of updates to your telephone extensions, you should update the PBX data by reloading the updated data file to represent the new situation.

This topic chapter includes the following sections:

- Import Preparations
- Import Data File Format
- Importing PBX Data

### Import Preparations

The main steps to import the PBX data are summarized as follows:

- For the initial definition of the PBXs in your network, refer to Chapter 4: The Catalog on page 36. This includes defining any additional fields for the PBX module that are not part of the PV4E default template.
- Before the PBX data is imported, you must create all the matching links for each extension as described in **Error! Reference source not found.** on page **Error! Bookmark not defined.**

### Import Data File Format

PBXs provide information on the configuration of the PBX switch via data dump files. These data files for PBXs vary from system to system. PV4E recognizes a simple file format that can be easily extracted from this data file. You need to edit the data file based on the description below. The result will be a comma delimited text file that you can import directly into PV4E.

Different PBX vendors include variations to these fields and you may need to do some manual editing to make the data file conform to the specification in the following table.

PV4E requires the data to be imported in the following format:

Hierarchy	Description	Comma Separated Fields	Description
-----------	-------------	------------------------	-------------

Hierarchy	Description	Comma Separated Fields	Description
Top level	PBX information	PBX, <PBX name>	Each file can contain only one PBX row. The row must start with the word PBX. For example: PBX, PBX-01
Multiple Modules	Module information	Module, <Module Name>	Each file can contain one or more modules. The row must start with the word Module. For example: Module, Module-01
Multiple Extensions	Extension information	<Module name>, <Port name>, <Extension number>, <User defined field1>, <User defined field2>, etc	Specify a row for each PBX port in each module. The row must start with its Module name. For example: Module-01, Port01, 3550, POTS

An example structure may look as follows:

PBX Information

Module Information

Extension Information

Extension Information

Extension Information

Module Information

Extension Information

Extension Information

Extension Information

Module Information

Extension Information

Extension Information

Extension Information

## Data File Example

The following is an example of an import data file for a PBX with 2 modules and 8 telephone extensions on each module.

PBX, PBX, 4.214, Install Date, 02/01/2005, Upgrade Date, 10/01/2005

Module, PBX-Mo-001, Install Date, 10/01/2005

PBX-Mo-001, Port01, 3550, POTS, Reception 3rd floor

PBX-Mo-001, Port02, 3551, POTS, Smith

PBX-Mo-001, Port03, 3552, POTS, Hussein

PBX-Mo-001, Port04, 3553, POTS, Thompson

PBX-Mo-001, Port05, 3554, POTS, Singh

PBX-Mo-001, Port06, 3555, POTS, Tanaka  
PBX-Mo-001, Port07, 3556, POTS, Chen  
PBX-Mo-001, Port08, 3557, POTS, Leblanc  
Module, PBX-Mo-002, Install Date, 10/01/2005  
PBX-Mo-002, Port01, 3541, Other,  
PBX-Mo-002, Port02, 3542, POTS, IT  
PBX-Mo-002, Port03, 3543, POTS, Jones  
PBX-Mo-002, Port04, 3544, ISDN, HelpDesk1  
PBX-Mo-002, Port05, 3545, POTS, HelpDesk1  
PBX-Mo-002, Port06, 3546, POTS, Unassigned  
PBX-Mo-002, Port07, 3547, POTS, Cooper  
PBX-Mo-002, Port08, 3548, POTS, Black

## Importing PBX Data

### > Importing the PBX data

1. From the **Tools** menu, select **PBX Import**.  
The Import dialog opens.

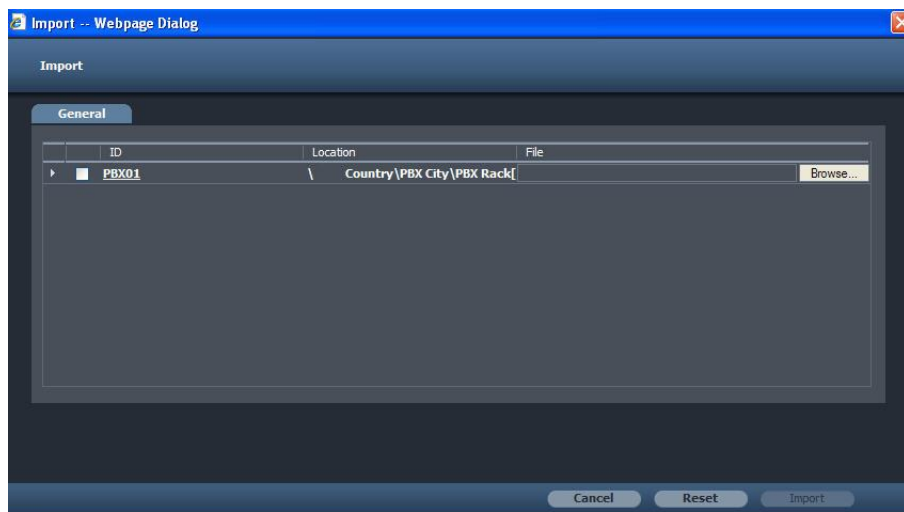


Figure 333 - *Import dialog*

2. Select one or more PBXs for importing data by clicking in the box alongside each PBX ID.
3. Click the Browse button to locate the PBX data file for each selected PBX. This file must be located on the PV4E Server.



4. Locate the file and click Open.  
You return to the Import dialog.
5. Click the Import button.  
The system processes the input data and generates a message box showing the results of the import.

If the number of telephone extensions in the import file is greater than the number of PBX ports in the PV4E database, an error message appears describing the problem.

If the message appears, check the data file to ensure it is formatted correctly. If the problem persists, ensure that you have defined all the links between the PBX switchboards and the associated outlets.

6. Check the results of the import process:
  - Click the **Maintenance** button on the top navigation bar.
  - Double-click on the **Import** event.  
The Event Detail window appears.
  - Click on the link that shows the Import log.

**Note:**

***After completing the import procedure, check the log for the message "PBX data file import completed" to ensure that the task has finished running.***

## Chapter 13: PV4E System Settings

### PV4E System Settings - Overview

When setting up the PV4E system, certain parameters need to be defined. These include:

- **Catalog** (See Chapter 4: The Catalog).  
Items are added directly to the Catalog when installing PV4E. This is referred to as the default Catalog. Additional Items can be added to the Catalog manually. During the Auto Detect process, any items that are discovered via this process are added directly to the Catalog.
- **Schedulers** - There are four schedulers:
  - LAN Mapper
  - LAN Server
  - Secure Link
  - Switch Traps.

The LAN Mapper and LAN Server schedulers need to be set before P-LET is run. This is described in the P-LET Chapter. After running P-LET, the schedulers for LAN Mapper and LAN Server can be reset if your network requirements change.

Switch traps provide real-time indications of any terminal equipment connections (link up) or disconnect (link down). A disconnection can be a regular disconnection or a failure in the physical communications link and the connection could be of an authorized or a non-authorized device in the network.

The Secure Links scheduler sets the interval at which the end devices are polled to detect changes in secure links. See *Secure Links Scheduler*.

- **Permissions.**  
The IT Manager uses Permission Settings to define the parameters for specific groups and users who have access to PV4E.
- Permissions are explained in this chapter. See *Defining Permissions*.
- **Event Notification.**  
Allows the selection of which events will be sent to a user via email and/or SMS.  
Event Notification is explained in this chapter.
- **Message Filtering**  
Allows the selection of which event messages will be sent to the user.  
Message Filtering is explained in this chapter. See *Message Filtering*.
- **System Tables**  
System Tables allows the option to make additions to the system. These include additional Icons, specific Work Order tasks and Location Types.  
See *System Tables*.
- **Work Order ID**  
Work order IDs can be allocated automatically by the system according to a pre-defined template, or given manually by the user when creating the Work Order. See *Creating a New Work Order*

- P-LET (See Chapter 9: Discovery Module (P-LET)Chapter 9: )  
PatchView for the Enterprise features the P-LET technology (Pro-active LAN Equipment Topology). P-LET discovers all active devices in the network, their subnets and identifies the following device parameters.
- Call Manager (See The Call ManagerThe Call Manager)  
The Call Manager, which processes information from IP Phones, must be defined with its IP address and other information, before you run the LAN Mapper.
- Software Upgrade  
Allows the download of new software to PatchView hardware elements. Software Download is explained in this chapter. See *Software UpgradeUpgrade*.

## Secure Links Scheduler

The Secure Links Scheduler defines how frequently the polling mechanism pings all the end devices in the secure links. The default and minimum interval is five minutes.

Any detected Secure Link anomalies are logged and an alert message is generated, allowing the System Manager to investigate the detection.

In order to validate the integrity of secure links, the system will send a ping for stations “with Always connected” status at the end of every time period, as defined in the secure link scheduler. If the station receives no response, an appropriate event will be fired.

## Setting the Secure Links Scheduler

### To Set the Secure Links Scheduler

2. From the **Settings** menu select **Schedule**.  
The Schedules area appears.
3. Click on the **Secure Link** tab.  
The switch trap details appear.
4. Click the Edit button to change the settings.  
The Edit Scheduler dialog opens.

Figure 334 - Edit Secure Link Scheduler Options

1. Selecting the **Enable Secure Link Scheduler** checkbox allows you to change the default schedule interval. If this checkbox is not selected, the application automatically checks secure link end-devices every five minutes.
2. You can set the recurrence pattern at a certain time every day, each day of the week or on a selected day basis.
3. Click **OK**.

## Defining Permissions

The IT Manager uses Permission Settings to define the parameters for specific groups who have access to PV4E.

In this process, individual users are assigned to a group/s inheriting the parameters set for those groups.

For example, the Admin group will have access rights to all system resources, but another group will have read-only rights and are not authorized to make changes to the system.

The following permissions are defined:

- Adding and defining New Groups
- Adding and defining New Users
- Assigning a Group to a User
- Assigning a User to a Group

## The Permissions Window

It is in the permissions window that the groups and users are added and defined.

Three groups are installed by the system. These are:

- Admin (Administrator) group

The Admin group has full access to the system

- Read Only group

The Read Only group has only read only access.

- Report Center group

Members of this group has access to the report center module

The parameters of these groups cannot be edited, but individual members can be added to them.

Viewing may be done by groups, including the members of the group, or by the user, including the groups that he belongs to.

## Adding a New Group

New groups can be added with specific permissions other than Admin, which allows complete access, or the Read only group.

For Example a Technician group that allows partial access to the system.

### To Add a New Group

1. From Settings select Permissions from the drop-down menu.
2. Select the Groups tab.
3. Click the New button.  
The Add/Edit Security Groups dialog opens.
4. Fill in the Name of the New Group.
5. Fill in the Description (optional).
6. Select the Permissions tab.

7. The Permissions Window opens.
8. Check the required parameters for this group.
9. Click the **OK** button.



Figure 336 - Adding a New Group

## Editing a Group

### To Edit a Group

1. Select the Groups tab.
2. Select the Group to be edited.
3. Click the Edit button.
4. The Add/Edit Security Groups dialog opens.
5. Make the required changes.

## Adding/Editing a New User

You can add new users to the system and authorize them to use the system resources.

### To add a new user

1. Select the User Tab in the Permissions Screen.  
Select an existing user from the list if you wish to edit that user's permissions.
2. Click the **New** button to add a new user, click the **Edit** button to edit an existing user.  
The Add/Edit Security User dialog opens.
3. Fill in the User Name of the New User in the Name field.

4. Fill in the User's full name.
5. Allocate a Password if required and confirm it.

**Tip:**

*Keep a list of all passwords, as they are not retrievable from the system.  
Passwords can be changed if required.*

6. Add a Description (optional).
7. Click the Notification Only box to enable the user to receive event notification emails or SMS without providing the user access to PV4E.
8. Click on the **Email** tab to add the user's email address and select the type and format of the messages the user receives (optional).

**Note:**

*The User can be assigned to a group at this point. See Assigning a User to Group.*

9. Click the **OK** button.

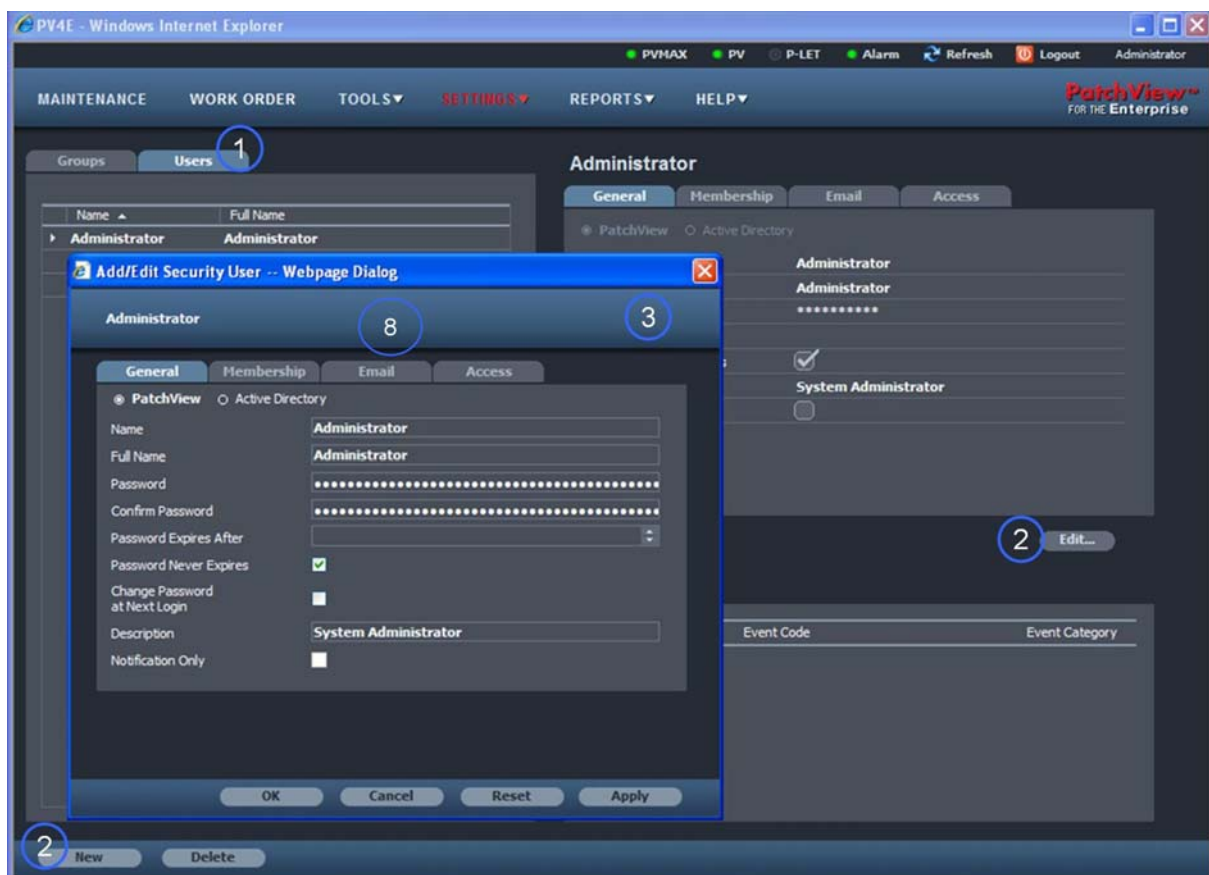


Figure 337 - Adding a New User

## Assigning a User to Group

### To assign a Group to a User

1. Select the Users Tab in the Permissions Screen from the drop-down menu.
2. Select the User.



3. Click the Edit button.  
The Add/Edit Security User dialog opens.
4. Click the Add/Remove button.  
A dialog listing available groups will open.
5. Select the group/s required.
6. Click the **OK** button.

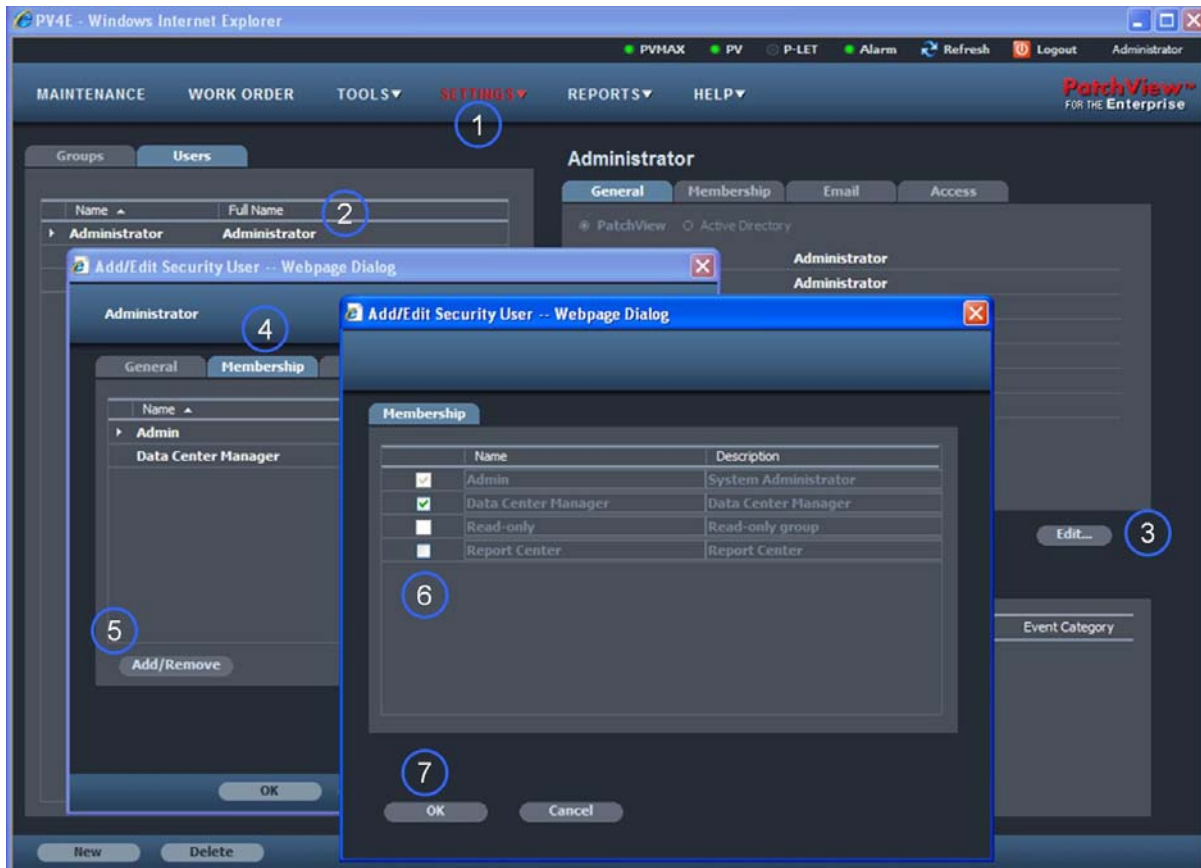


Figure 338 - Assigning a User to a Group

## Changing a User Password

### Tip:

*Keep a list of all passwords, as they are not retrievable from the system.  
Passwords can be changed if required.*

### To change a User Password

1. Choose Permissions from Settings menu.
2. Select the Users Tab in the Permissions Screen.
3. Select the User.
4. Click the **Edit** button.  
The Add/Edit Security User dialog opens.
5. Click inside the **Password** box.
6. A confirmation message opens. Click the **OK** button to confirm.  
The Password fields will clear.
7. Change the Password and confirm it.

**Tip:**

*For more information about password Restriction refer to the following paragraph **Permissions**.*

8. Click the **OK** button.

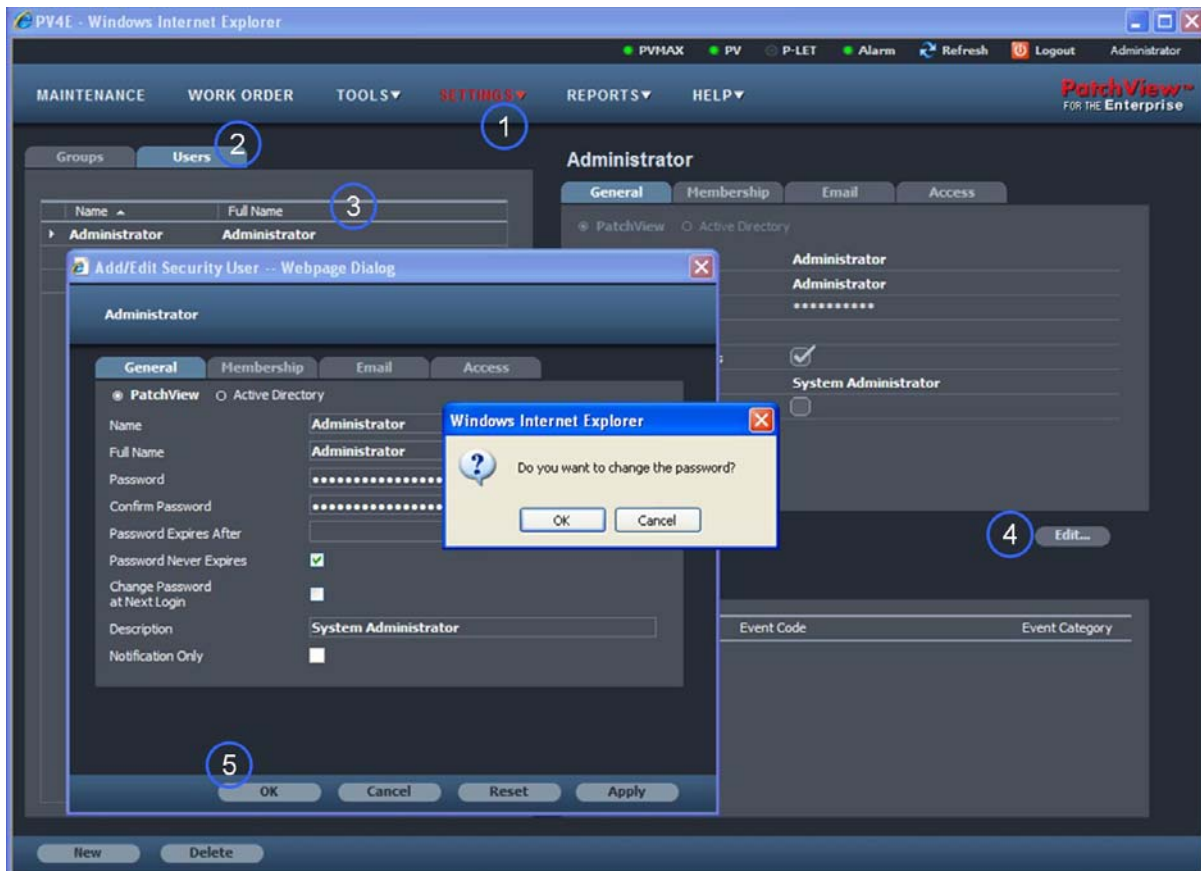


Figure 339 - Changing a User Password

## Deleting a Group or User

When you delete a group, any users assigned to that group are automatically disconnected from that group but still appear as users in the system. If you delete a user, the user is removed from the group and deleted from the database.

### To delete a Group or User

1. Select the Groups or User tab.
2. Select the Group or User to be deleted.
3. Click the **Delete** button.
4. A confirmation message opens. Click the **OK** button to confirm.

## Permissions

### Administrator Role

Every user belonging to the Administrator group is permitted to add new users, and to view and edit the system permissions for all users, including:

- Setting user passwords

- Viewing and modifying user profiles
- Adding and deleting users

## Password Settings

Password modification is enabled in Edit mode.

- A "Change Password at next login" check box has been added. By default the box is checked for new users and whenever the Administrator changes a user's password. When logging in for the first time after setting this option, a message box notifying the user that the password has expired is displayed and enables the user to enter a new password. An additional edit box to confirm the password has also been added to V5.0.
- Asterisks are presented for every entered character, and the password is sent encrypted to the server.
- The email settings have been removed to a new tab labelled "Email"

## Password Expiration

A password expiry date has been added to the system. For this purpose the following fields have been added to the password setting dialog:

- Password expires after the number of days the password is valid since first initiation. This parameter is relevant for the initial password settings as well as for passwords changed by users. The default value is 90 days.
- Password never expires – when marked the "Password expires after" field is disabled. Default – unchecked.

When logging in, the system tests whether the password is still valid. In the event that the "Password never expires" the field is checked, this test will not be performed.

Figure 340 - Permissions dialog

## Password Restriction

The password should be a minimal length of eight characters, and requires at least one letter and at least one digit.

Recently used passwords will be rejected by the system. The user must enter a password that has not been used for at least five password changes.

## Non-Administrator Role

When a non-administrator login is performed, the Settings\Permission option will be replaced by a Settings\Change password option. When selected a dialog box with the following parameters appears:

- Current password
- New Password
- Confirm Password

Asterisks are presented for every entered character, and the password is sent encrypted to the server.

Upon a successful password modification the following message will appear:  
*Password was successfully updated.*

All the parameters defined by the Administrator in the Administrator Role section will also be effective for the new password set by the user.

## Event Notification

The Event Notification Setting controls which events are sent to users via email or SMS. You can select the events you want to send.

**Note:**

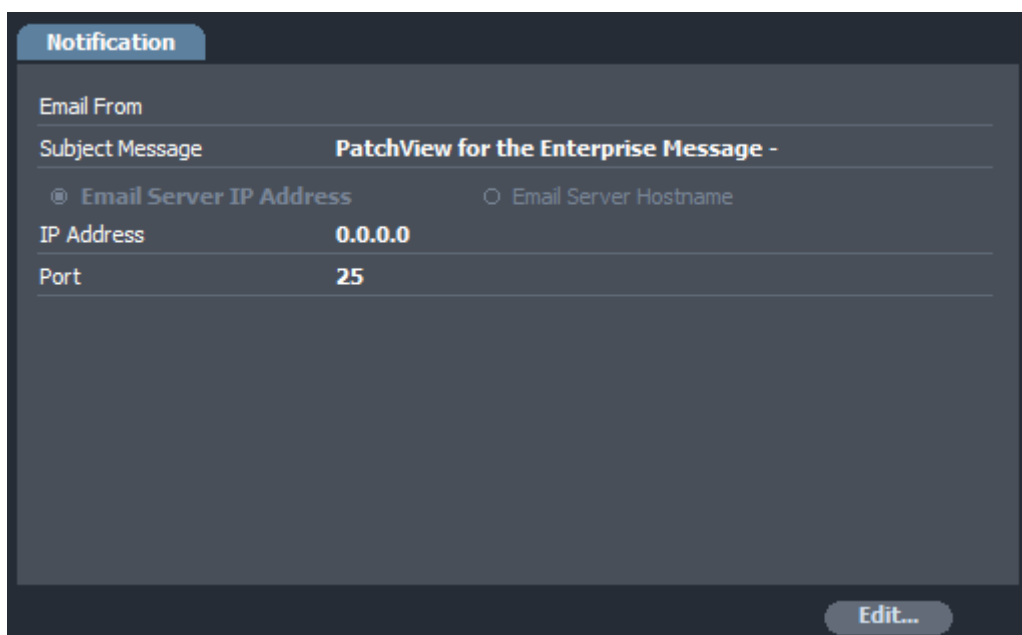
*All events are logged in the event log file and can be retrieved at any time.*

## Setting up the Email Server

This one-time procedure defines the email server for event notification.

### To Set Up the Email Server

1. From Settings, select **Mail Configuration** from the drop-down list. The Notification Window opens.

The screenshot shows a 'Notification' window with a dark theme. It contains several input fields: 'Email From' (empty), 'Subject Message' (set to 'PatchView for the Enterprise Message -'), and a radio button selection for 'Email Server IP Address' (selected) and 'Email Server Hostname' (unselected). Below the radio buttons, there are fields for 'IP Address' (set to '0.0.0.0') and 'Port' (set to '25'). An 'Edit...' button is located at the bottom right of the window.

Email From	
Subject Message	PatchView for the Enterprise Message -
<input checked="" type="radio"/> Email Server IP Address	<input type="radio"/> Email Server Hostname
IP Address	0.0.0.0
Port	25

*Figure 341 - Mail Configuration Window*

2. Click the Edit button.  
The Edit Notification Setting dialog opens.

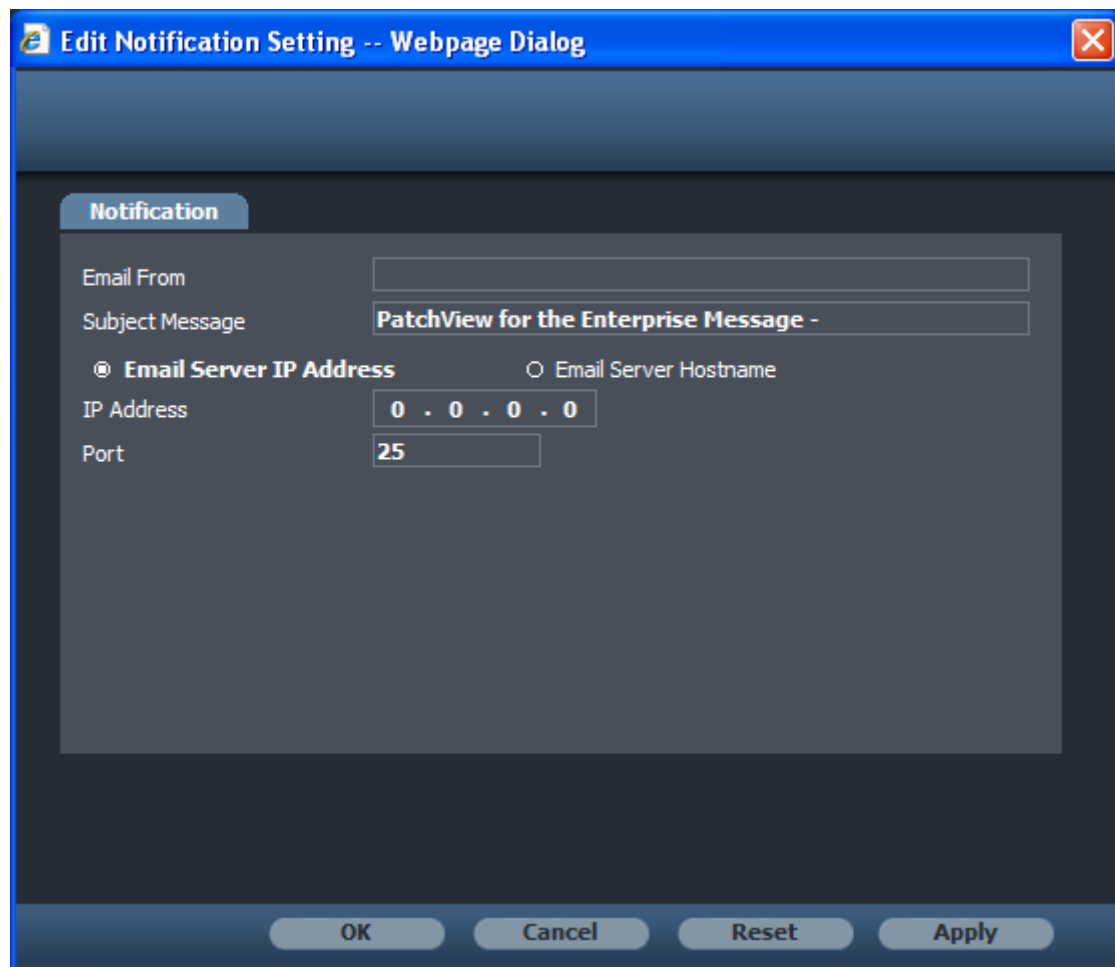


Figure 342 - Edit Notification Setting dialog

3. Click the Email Server IP Address button and enter the IP address of the email server in the IP Address field.  
Or  
Click the Email Server Hostname button and enter the host name of the email server in the Hostname field.
4. Enter the sender's email address in the Email From field.
5. Enter the subject of the email in the Subject Message field (Optional).
6. Click the **OK** button.

## Assigning Event Notification

This tool allows you to assign which events are sent to users, and to modify or cancel already assigned events.

There are two ways to assign event notification:

- Assigning Event Notification by Event on page 484
- Assigning Event Notification by User on page 486

## Assigning Event Notification by Event

To assign event notification by event:

1. From Settings menu select **Event Notification**.  
The Events window opens.

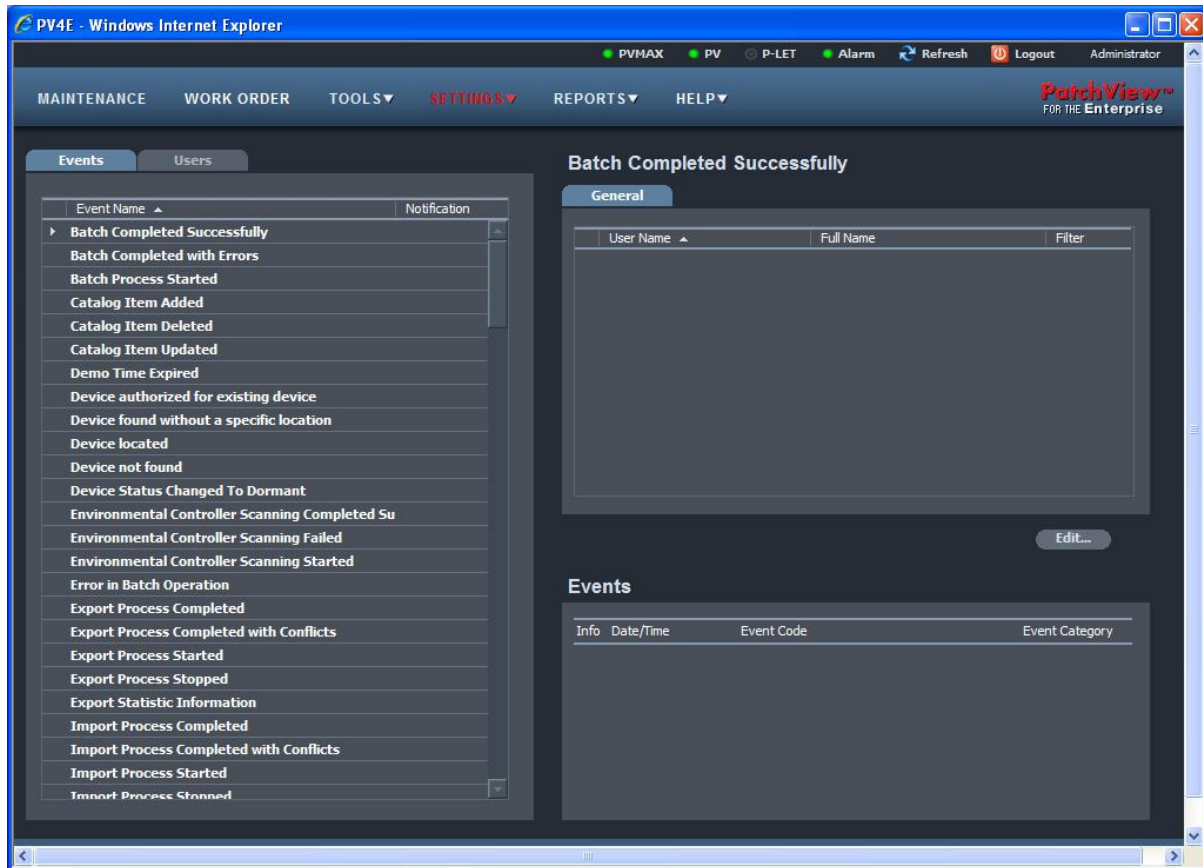
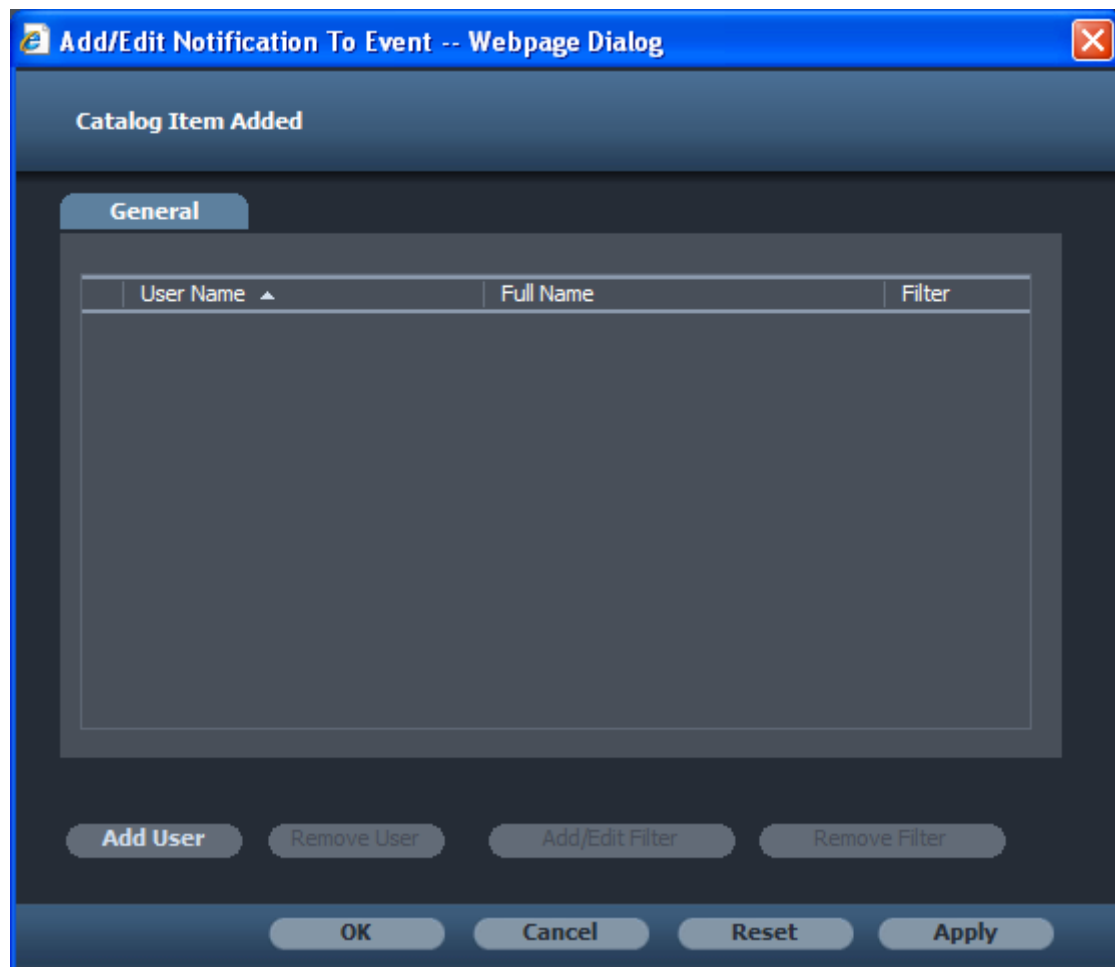


Figure 343 - Events Window

2. Select an event from the Events tab and click the Edit button in the Information pane.  
The Add/Edit Notification to Event window opens.



*Figure 344 - Add/Edit Notification to Event Window*

3. Click the Add User button.  
The Add Users window opens.



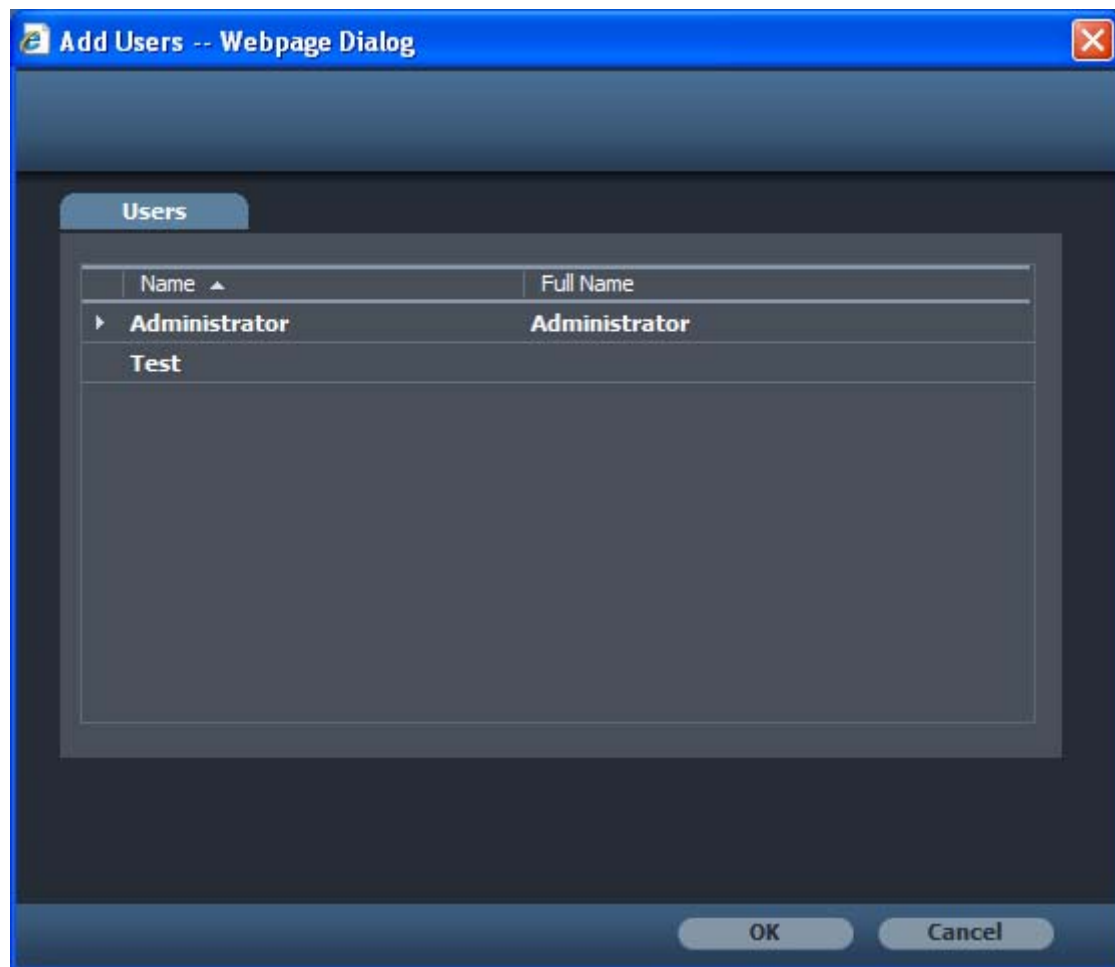


Figure 345 -Add Users Window

4. Select the users who should be notified for the event, and click the **OK** button.  
The Add Users window closes and the Add/Edit Notification to Events window is updated with the selected users.
5. If you want to configure filters for the event notification, refer to Configuring Event Notification Filters on page 488.
6. Click the **OK** button.  
The event notification is updated and active.

## Assigning Event Notification by User

**To assign event notification by user:**

1. From **Settings** menu select **Event Notification**.  
The Events window opens. See figure below.
2. Click the User tab.
3. Select a user from the Users tab and click the **Edit** button in the Information pane.  
The Add/Edit Notification to User window opens.

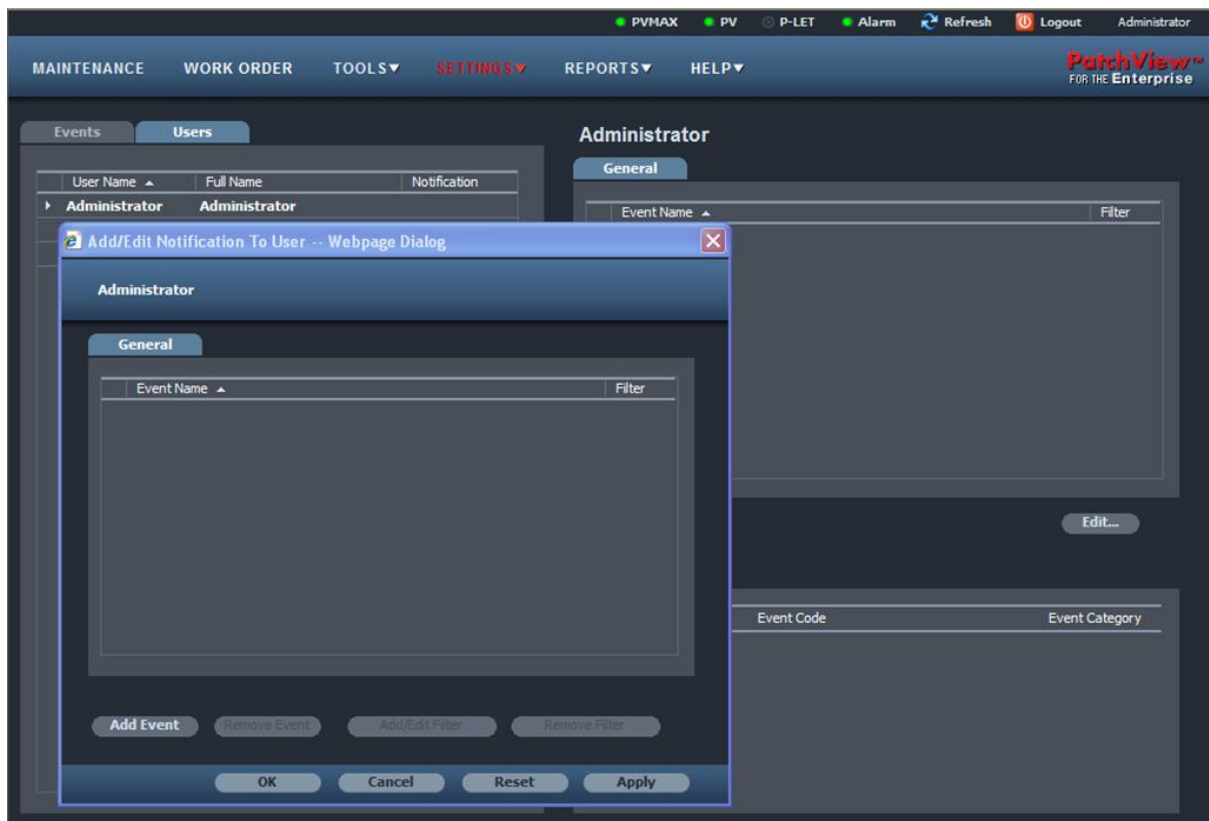


Figure 346 - Add/Edit Notification to User Window

4. Click the Add Event button.  
The Add Events window opens.

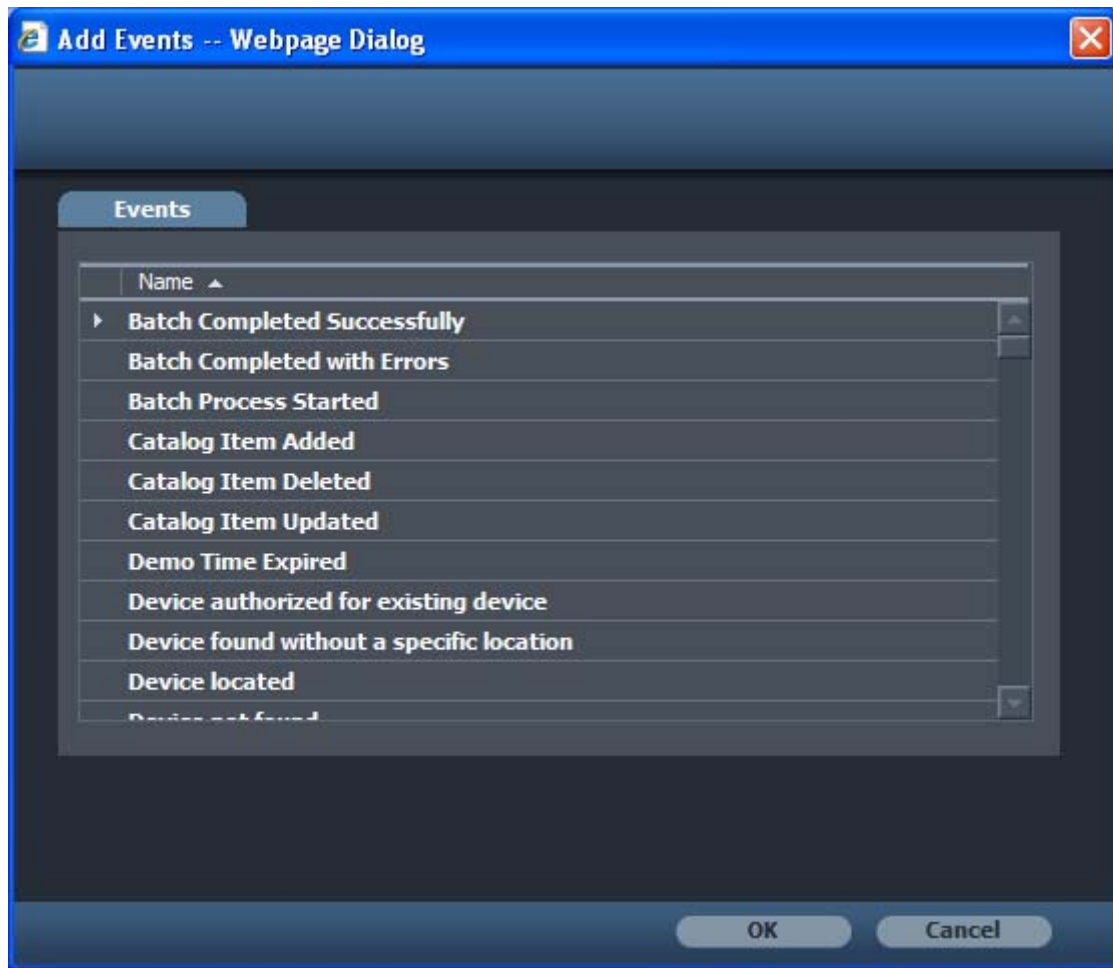


Figure 347 - Add Events Window

5. Select the events for which the user should be notified, and click the **OK** button.  
The Add Events window closes and the Add/Edit Notification to User window is updated with the selected events.
6. If you want to configure filters for the event notification, refer to Configuring Event Notification Filters on page 488.
7. Click the **OK** button.  
The event notification is updated and active.

## Configuring Event Notification Filters

### To configure event notification filters:

1. In the Add/Edit Notification to Event window, select the users for whom you want to configure a filter, and click the Add/Edit Filter button.  
Or, in the Add/Edit Notification to Users window, select the events for which you want to configure a filter, and click the Add/Edit Filter button.  
The Add/Edit Filter window opens.

Figure 348 -Add/Edit Filter Window

- *Filtering event notification by schedule* – You can send notification of events only if they occur on certain days of the week, or at certain times of the day, or only during certain dates. See steps 2 to 4.
  - *Filtering event notification by device* – You can send notification of events only if they occur on certain devices or locations. See step 5.
4. To filter events by time of day, in the Time area, enter the starting time in the Start field and the ending time in the End field. Times should be entered in hours and minutes, using military time.
  5. To filter events by day of the week, in the Week Day area, select the days when the user should be notified. A ☒ appears next to each selected day.
  6. To filter events by date, select Calendar. In the Calendar area, select the field Include following dates to select dates when the user should be notified, or select the field Exclude following dates to select dates when the user should not be notified. Enter the starting date in the From field and the ending date in the To field. Dates should be entered in month, day and year order.
  7. To filter events by device, select the Devices tab. Select the specific device from the list, and click Add. Enter the device name, functional type, and location.

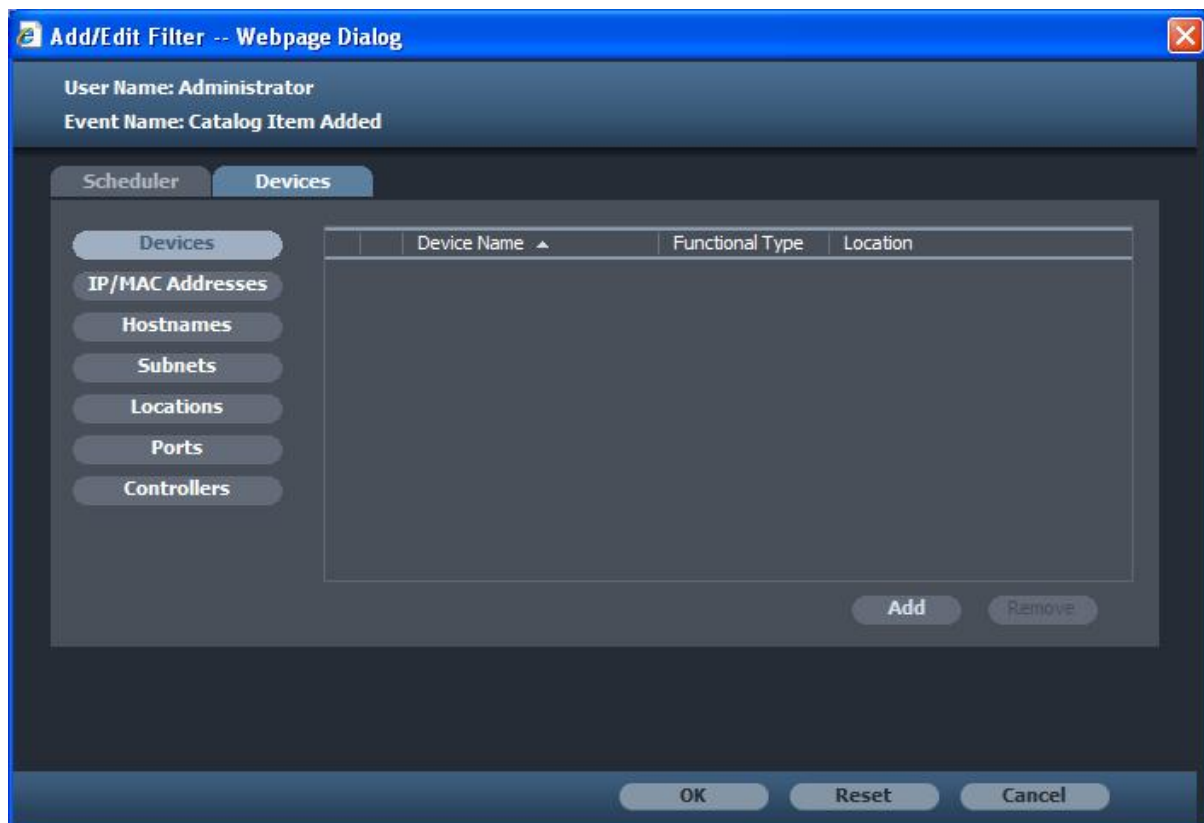


Figure 349 - Add/Edit Filter Window – Devices Tab

8. Click the **OK** button.  
The Add/Edit Filter window closes.

## Message Filtering

The Message Filtering Setting controls, which messages, received from the system, are displayed. You can choose that all messages are displayed or you can select the type of messages you want to see.

**Note:**

*All messages will be logged in the event log file and these can be retrieved at any time.*

1. From Settings select Msg. (Message) Filtering from the drop-down menu.
2. The Message Filtering Window opens.
3. Click the Edit button.  
The Add/Edit Msg. Filtering dialog opens.
4. Select the categories required.
5. Click the **OK** button.

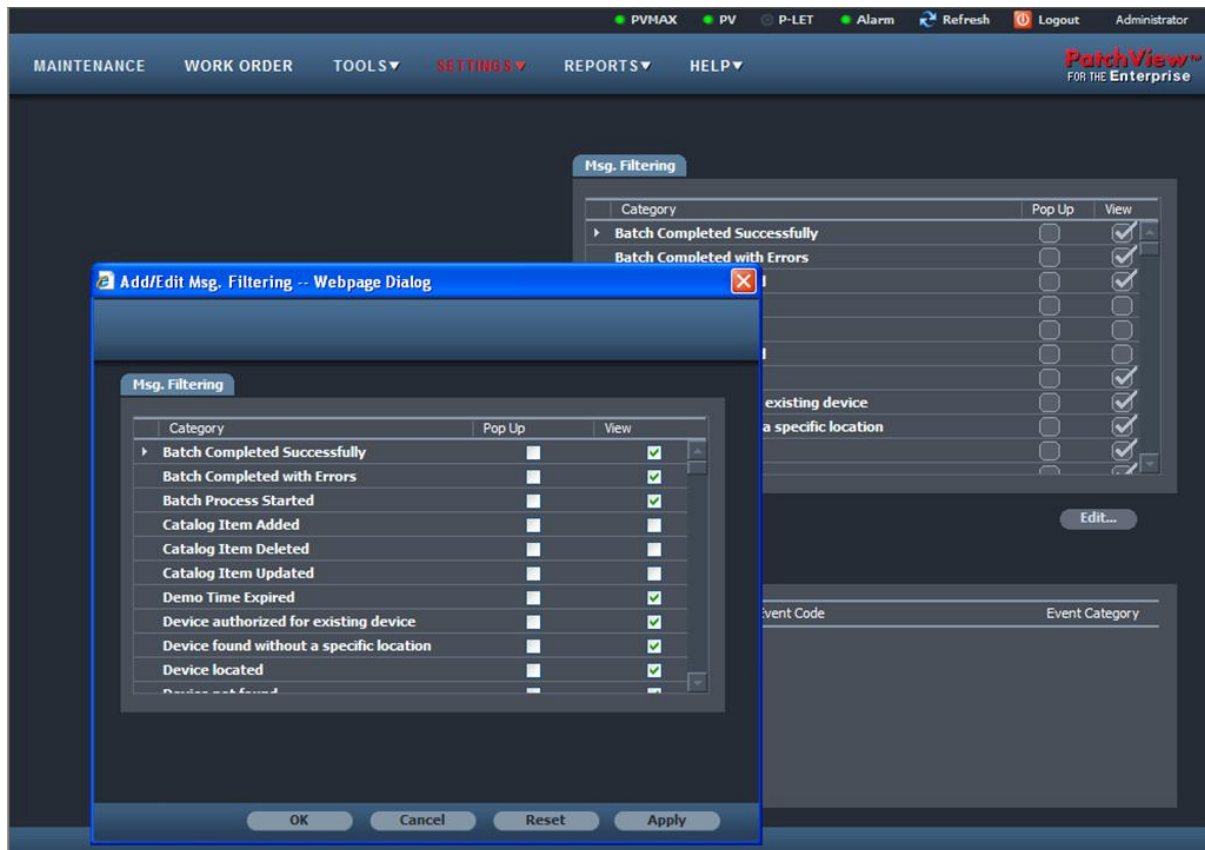


Figure 350 -Message Filtering

## System Tables

System Tables allows the option to make additions to the system. These include:

- Additional Icons
- Images for devices
- Specific Work Order tasks
- Location Types
- Services

## Adding and Deleting Icons

### To add Icons

1. From Settings select **Systems Tables** from the drop-down menu. The System Tables Window opens.
2. Select the Icon Tab.
3. Click the **Add** button. The Add Icon dialog opens.
4. Type in the name of the new icon.
5. Click the **Browse** button to locate graphic to be inserted (gif format).
6. Click the **OK** button to continue.

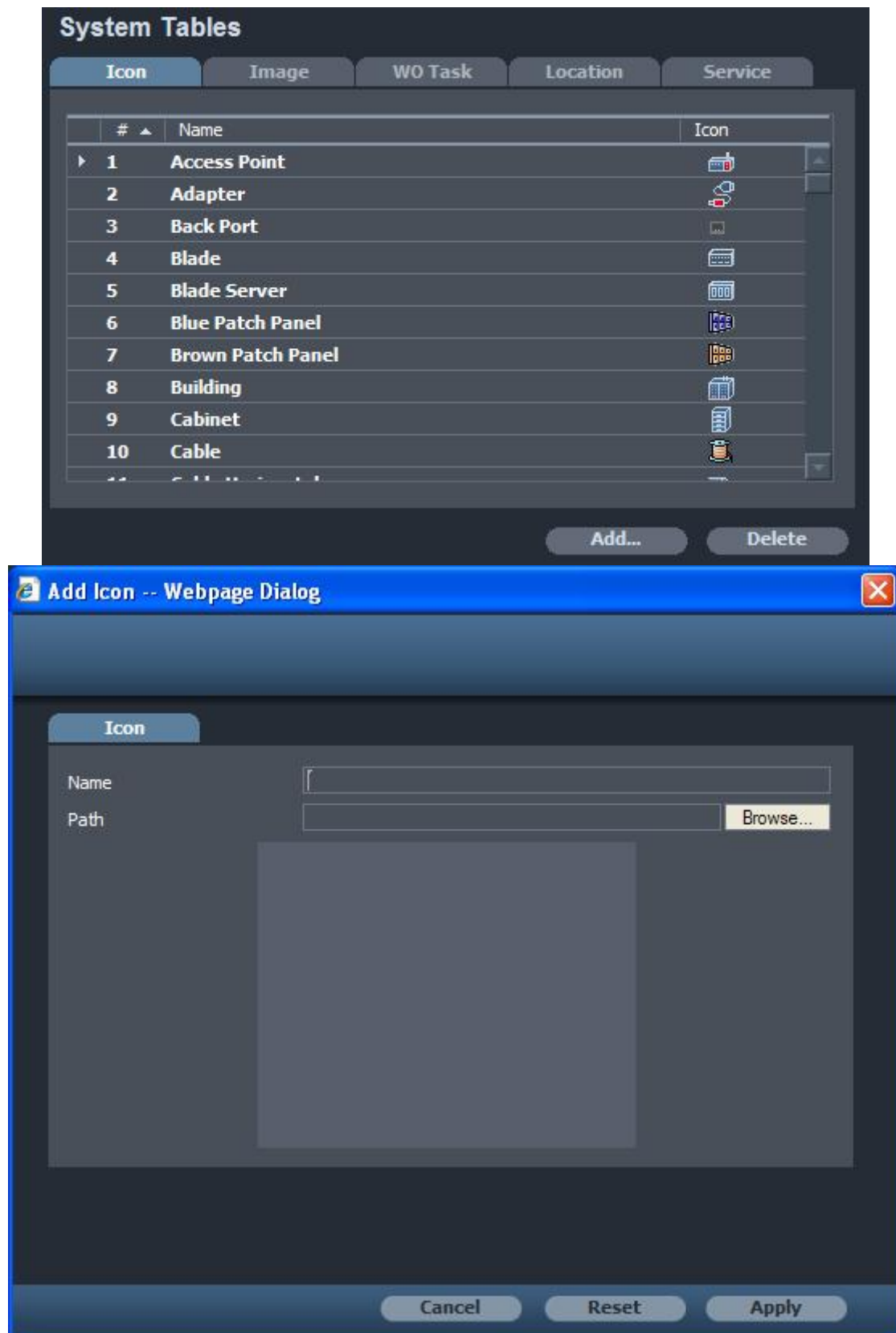


Figure 351 -Adding and Deleting Icons

7. The new icon will be included in the list.

#### To delete an Icon

1. From Settings select **Systems Tables** from the drop-down menu.  
The System Tables Window opens.
2. Select the **Icon** tab.
3. Select the Icon to be deleted.
4. Click the **Delete** button.
5. A confirmation message opens. Click the **OK** button to confirm.

## Adding and Deleting Images

#### To add Images

1. From Settings select Systems Tables from the drop-down menu.  
The System Tables Window opens.
2. Select the Image Tab.
3. Click the Add button.  
The Add Image dialog opens.
4. Type in the name of the new Image.
5. Click the Browse button to locate graphic to be inserted (gif format).
6. Click the OK button to continue.  
The new Image will be included in the list

#### To delete an Image

1. From Settings select Systems Tables from the drop-down menu.  
The System Tables Window opens.
2. Select the Image tab.
3. Select the Image to be deleted.
4. Click the Delete button.  
A confirmation message opens. Click the OK button to confirm.

## Adding and Deleting Work Order Task Types

#### To add Work Order Tasks

1. From Settings select Systems Tables from the drop-down menu.
2. The System Tables Window opens.
3. Select the W O Task tab.
4. Click the Add button.
5. The Add Work Order Task dialog opens.
6. Type in the name of the new task.
7. Click the OK button to continue.



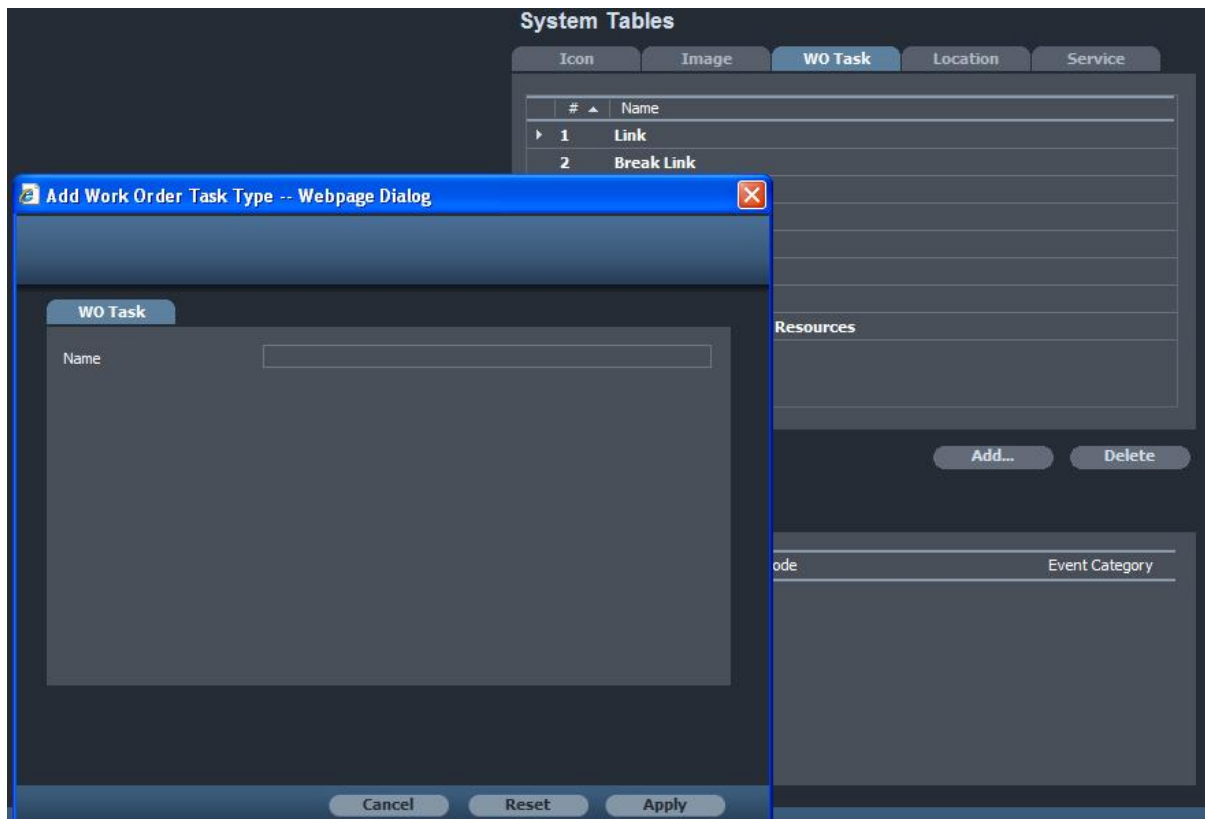


Figure 352 -Adding and Deleting Work Order Task Types

8. The new task will be included in the list.

#### To delete a Work Order Task

1. From Settings select **Systems Tables** from the drop-down menu. The System Tables Window opens.
2. Select the **W O Tasks** tab.
3. Select the Task to be deleted.
4. Click the Delete button.
5. A confirmation message opens. Click the **OK** button to confirm.

## Adding and Deleting Location Category Type

#### To add Location Category

1. From Settings select **Systems Tables** from the drop-down menu. The System Tables Window opens.
2. Select the **Location** tab.
3. Click the **Add** button. The Add Location Category dialog opens.
4. Type in the name of the new location.
5. Click the **Browse** button to locate icon for this location.
6. Click the **OK** button to continue.

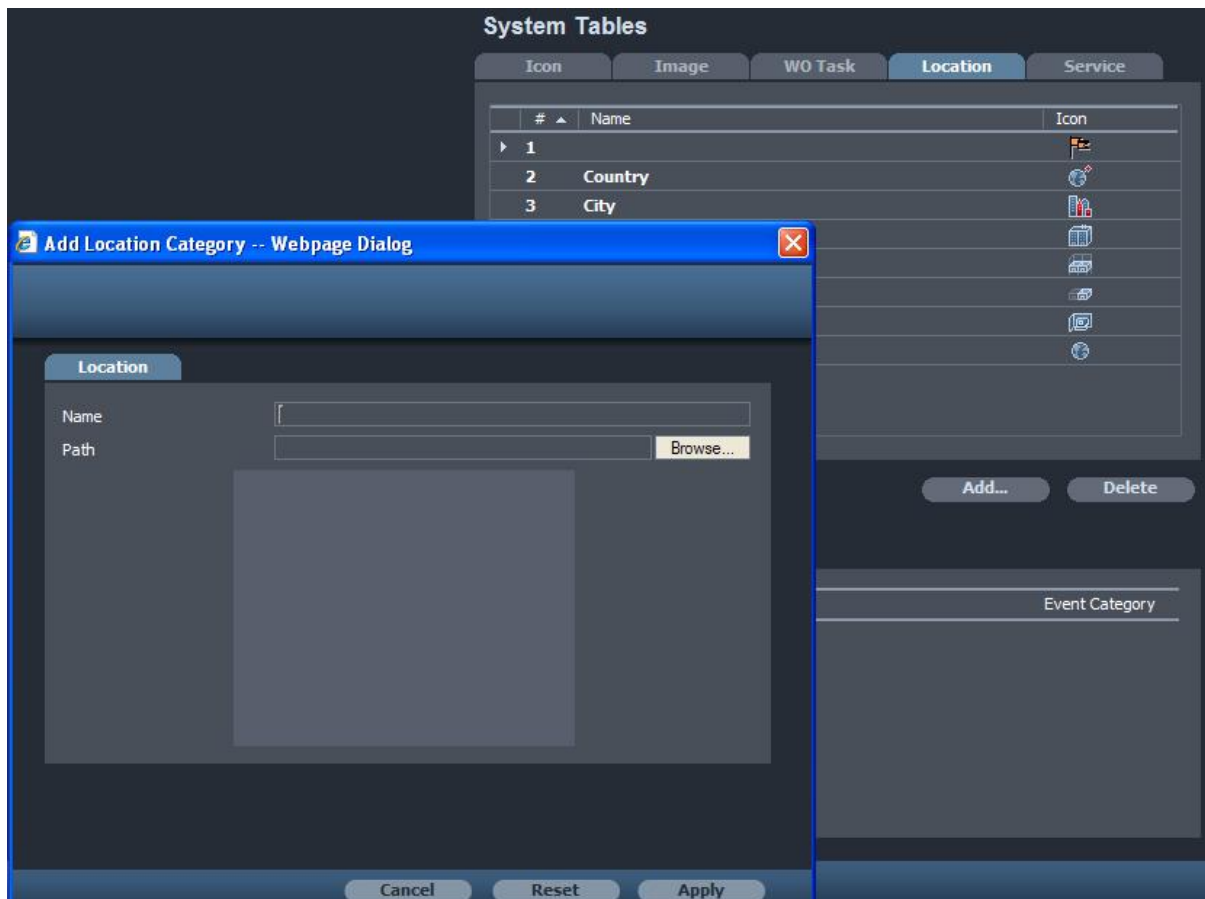


Figure 353 - Adding and Deleting Location Category Type

7. A box opens showing the new name of the location and the icon.
8. Click the **OK** button to continue
9. The new location category will be included in the list.

#### To delete a Location Category

1. From Settings select Systems Tables from the drop-down menu.
2. The **System Tables** Window opens.
3. Select the **Location** tab.
4. Select the Location to be deleted.
5. Click the **Delete** button.
6. A confirmation message opens.  
Click the **OK** button to confirm.

## Adding and Deleting Service

#### To add Service

1. From Settings select Systems Tables from the drop-down menu.  
The System Tables Window opens.
2. Select the Service Tab.
3. Click the Add button. The Add Service dialog opens.

4. Type in the name and description of the new Service.
5. Click the OK button to continue.  
The new service will be included in the list

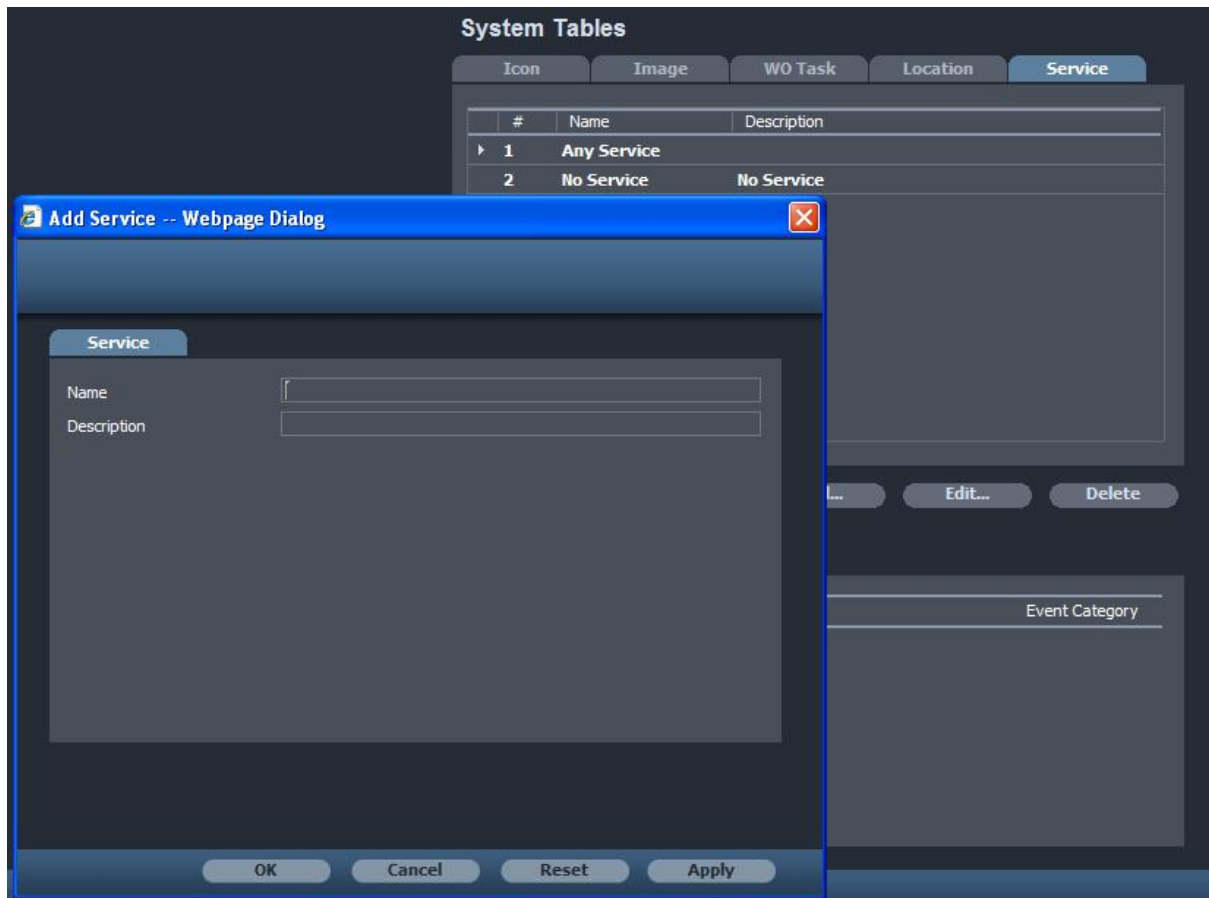


Figure 354 - Service List

#### To edit a Service

6. From Settings select Systems Tables from the drop-down menu.  
The System Tables Window opens.
7. Select the Service tab.
8. Select the Service to be edited.
9. Click the Edit button.
10. Edit the Name and/or Description.  
Click OK to save changes.

#### To delete a Service

11. From Settings select Systems Tables from the drop-down menu.  
The System Tables Window opens.
12. Select the Service tab.
13. Select the Service to be deleted.
14. Click the Delete button.  
A confirmation message opens. Click the **OK** button to confirm.

## Work Order ID

Work Order IDs can be allocated automatically by the system according to a pre-defined template, or given manually by the user when creating the work order.

### To set Work Order ID definition mode

15. From Settings, choose **Work Order** from the drop-down menu.  
The Message Filtering Window opens.
16. Click the **Edit** button.  
The Add/Edit Work Order dialog opens.
17. Under Work Order ID assignment, click Manual Entry to indicate that all work order IDs are to be defined manually.
18. Click Automatic Numbering to have the system automatically assign a work order ID.  
In this case, define the template you want to use for automatic work order IDs.
19. In the Template field, type the text you want to include in the work order name. For example, you may want to use "W.O – [ID]". The template must include [ID] and [Date]. This is the parameter that designates a unique work order ID.
20. In the ID Start At field, type the starting number for your work order IDs. For example, 0001. Work orders from the above example would be named as follows: W.O – 0001, W.O – 0002, W.O – 0003 etc.
21. Click the **OK** button.

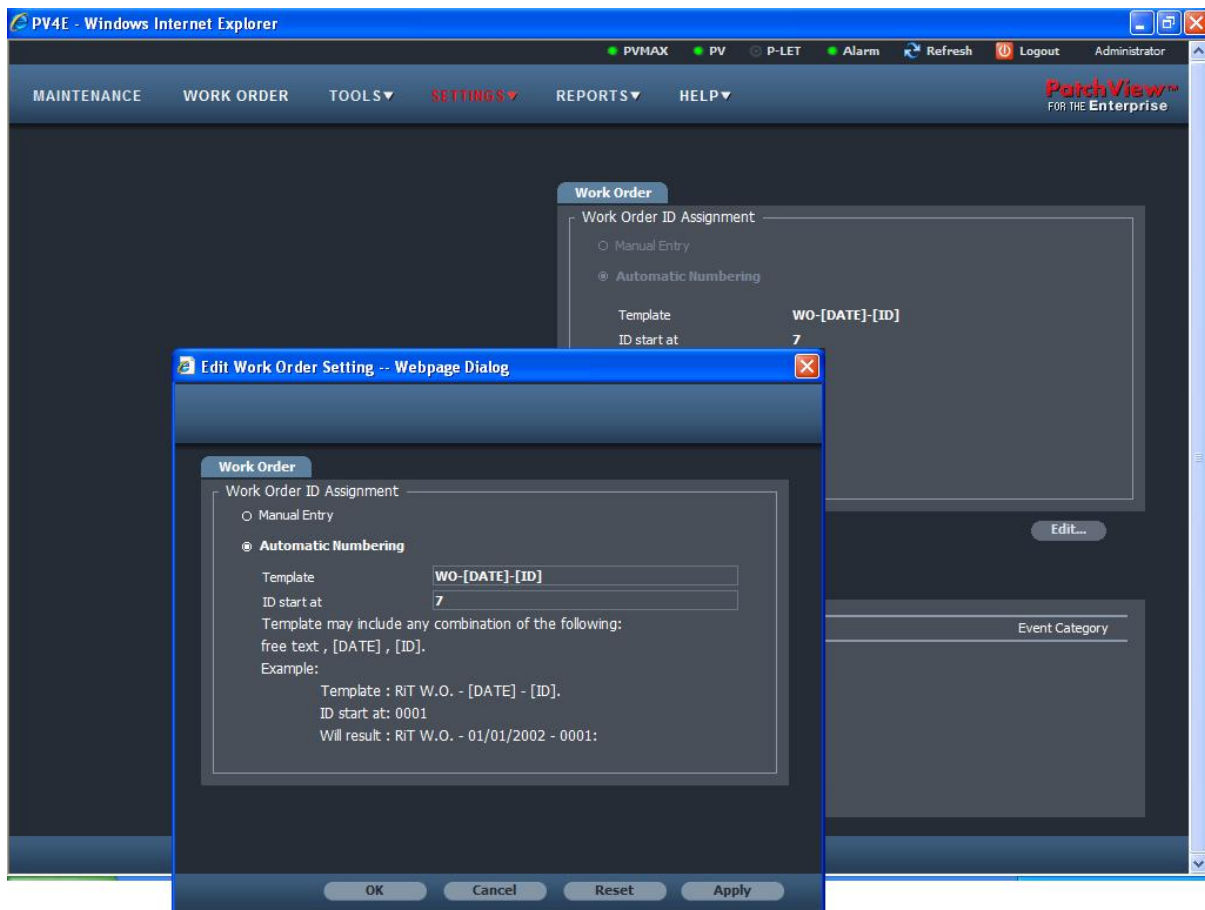


Figure 355 - Work Order ID

## Software Upgrade

Use Software Upgrade to upgrade new software versions to specific PatchView hardware devices. You can choose to download the software to all the devices or only certain devices. Set the software upgrade password parameters prior to downloading.

### **Note:**

*All PVMax components must be of the same version generation. Ensure that you are downloading the correct versions with your local RiT technical support representative.*

The process to follow to ensure a successful download is:

- Define the FTP username and password in IIS FTP
- Setup the FTP username and password in PV4E
- Download the software.

## Setting up the Software Upgrade

### To set up the Software Upgrade:

1. From the **Settings** menu in the top navigation bar, select **Software Upgrade**.

The FTP setting for software download to PVMax devices window opens.

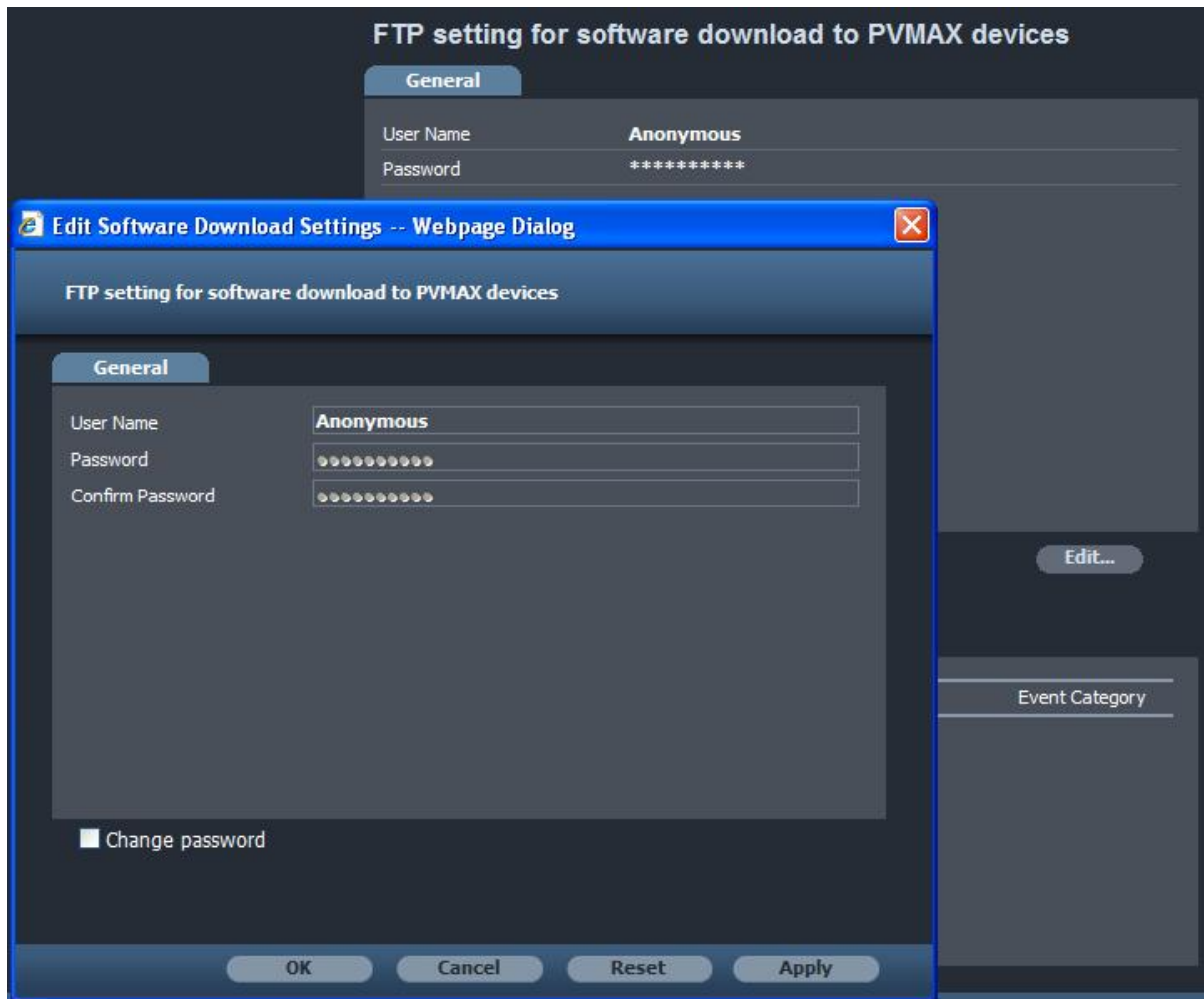


Figure 356 - FTP Setting for software download to PVMax devices window

2. Click the Edit button.  
The Edit Software Upgrade Settings dialog opens.
3. Define the User Name.  
Ensure the User Name and Password are exactly the same as the settings made when defining the FTP settings previously.
4. Check the Change Password box.
5. A confirmation message opens. Click the **OK** button to confirm.
6. Enter the new password in the Password and Confirm Password fields.
7. Click the **OK** button.

## Downloading the Software

### To download software:

1. Click the **Maintenance** button in the top navigation bar.  
The Location Tree appears.
2. Click the **Topology** tab.  
The PVMax Topology Tree appears.
3. Right click on PVMax Topology in the tree and select **Software Upgrade**.  
The Software Upgrade dialog opens.

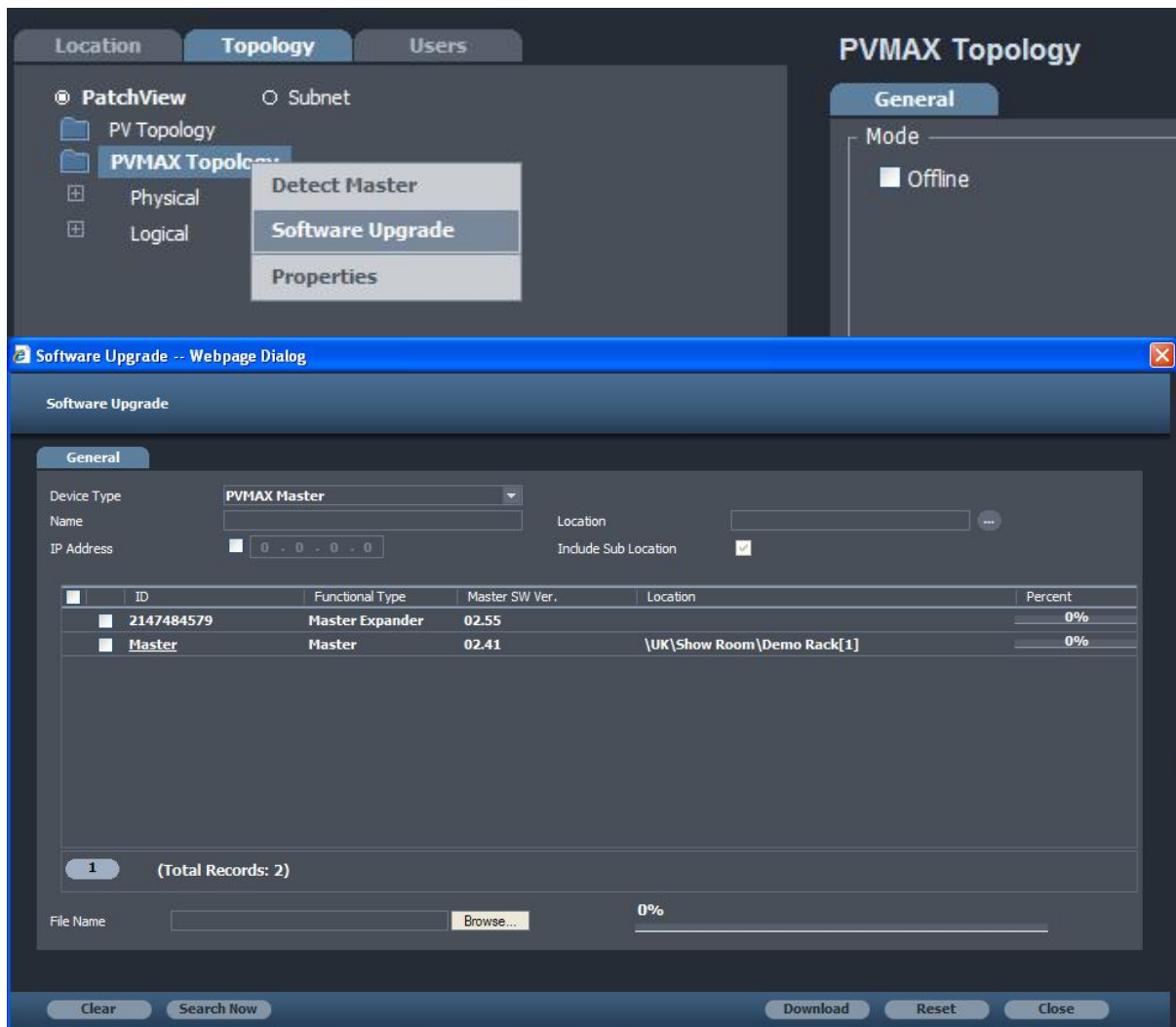


Figure 357 - Software Upgrade dialog

4. Select the Masters or Master Expanders to whose devices you want to Upgrade.
5. [Optional] Click the link in the Expander SW Ver. or Scanner SW Ver. to view the list of expanders and scanners that will be updated for the specific Master.  
The Software List dialog opens.

### Note:

*The Software List dialog shows devices that are currently connected and those that are no longer connected. The Upgrade process only updates connected devices.*

6. Click Close in the Software List dialog.
7. Click one of the Device Type options - Masters, PVMax Scanner and Expander. Each device type has its own specific software and download file.
8. Click the Browse button to browse to the software file you want to download.

**Note:**

*For Masters, the software file has a .BIN extension. For PVMax Scanners and Expanders, the software file has a .BOT extension.*

9. Click the Upgrade button to start the Upgrade process.  
The software Upgrade process begins. You cannot stop a download process that is in progress. The progress box on the lower right shows the total percent of the software download completed.  
The progress box next to each Master or Master Expander shows the percent of the software download completed for the devices under that Master or Master Expander.  
If the upgrade process fails, the progress boxes turn red. When the upgrade completes, the progress boxes turn blue.
10. Click the Cancel button to close the window and the Events log is updated.

## Location Access Permission

### General

The Location Access Permission feature is a new option that has been designed to grant PV4E user groups and also individual users various levels of access rights to edit links.

The *Edit Link* operation is restricted for users without the relevant access permissions.

Access Permission can only be granted by the Administrator or a user with Administrator rights.

**Note!**

*This feature refer to Edit Link permission only*

### Group Level

An *Access* tab has been added that stores information regarding the locations to which the user has access.

### Individual User Level

An *Access* tab has been added to the Users' pane. The tabs' content is the same as the group's content.

The user's permissions are a subset of their personal permissions and the permissions of the groups to which they are assigned.

## Setting the Location Access Permission

From the *Settings* tab on the main tool bar, select **Settings > Permissions**.



Figure 358 - PV4E Screen – Settings – Permissions tab

The *Permissions* tab opens by default. To change Access permissions, click the **Access** tab, the following screen opens:

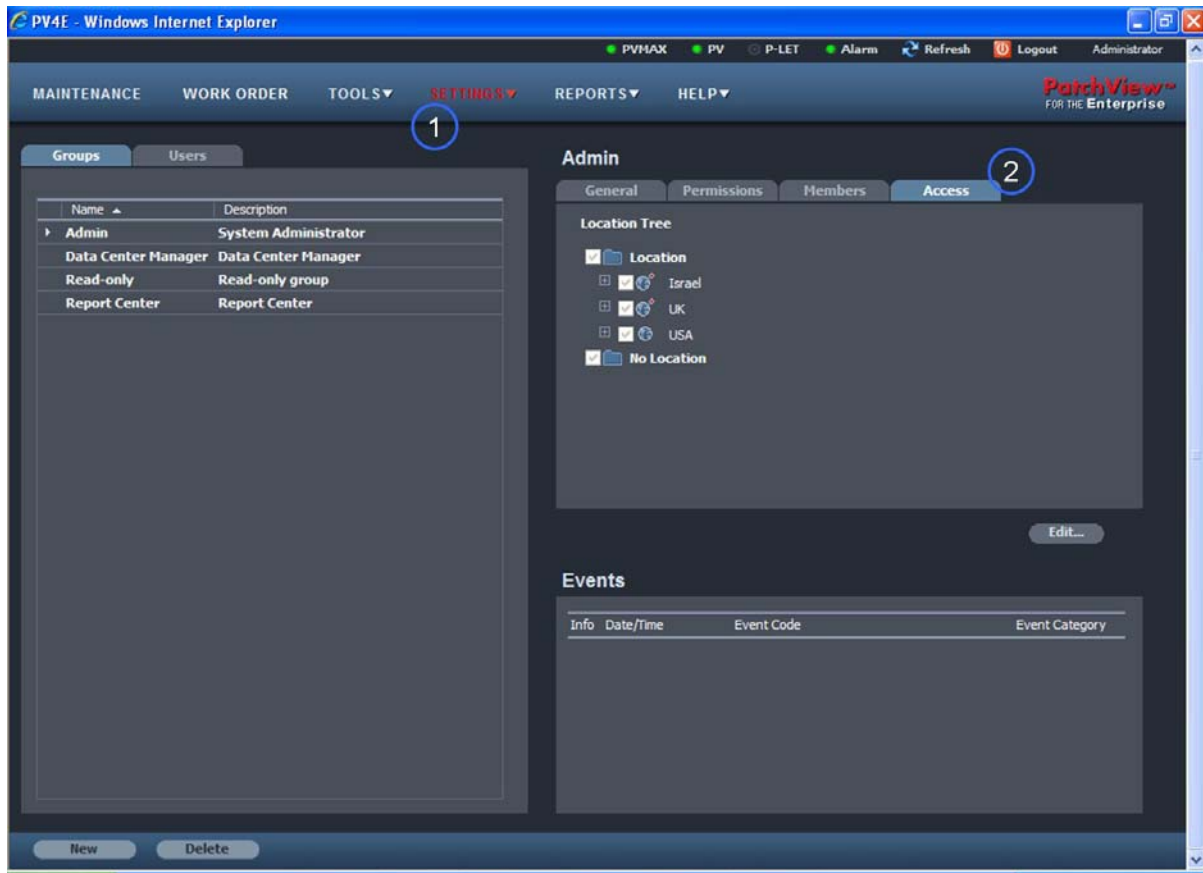


Figure 359 - PV4E Screen – Settings –Access tab – View only

## The Access Tab

All checkboxes appear as disabled in the *Access* tab.

To view actual permissions, click **Edit**.

The *Access* tab contains a tree with checkboxes next to each location that allows the Administrator to set the location access permissions for individual users and groups:

- A black checked box indicates that the user has access to a location and to all of its sub locations.
- A grey check indicates that the user has access to a location and to one or more of its sub locations, but not all.
- An unchecked box indicates that the user does not have access.

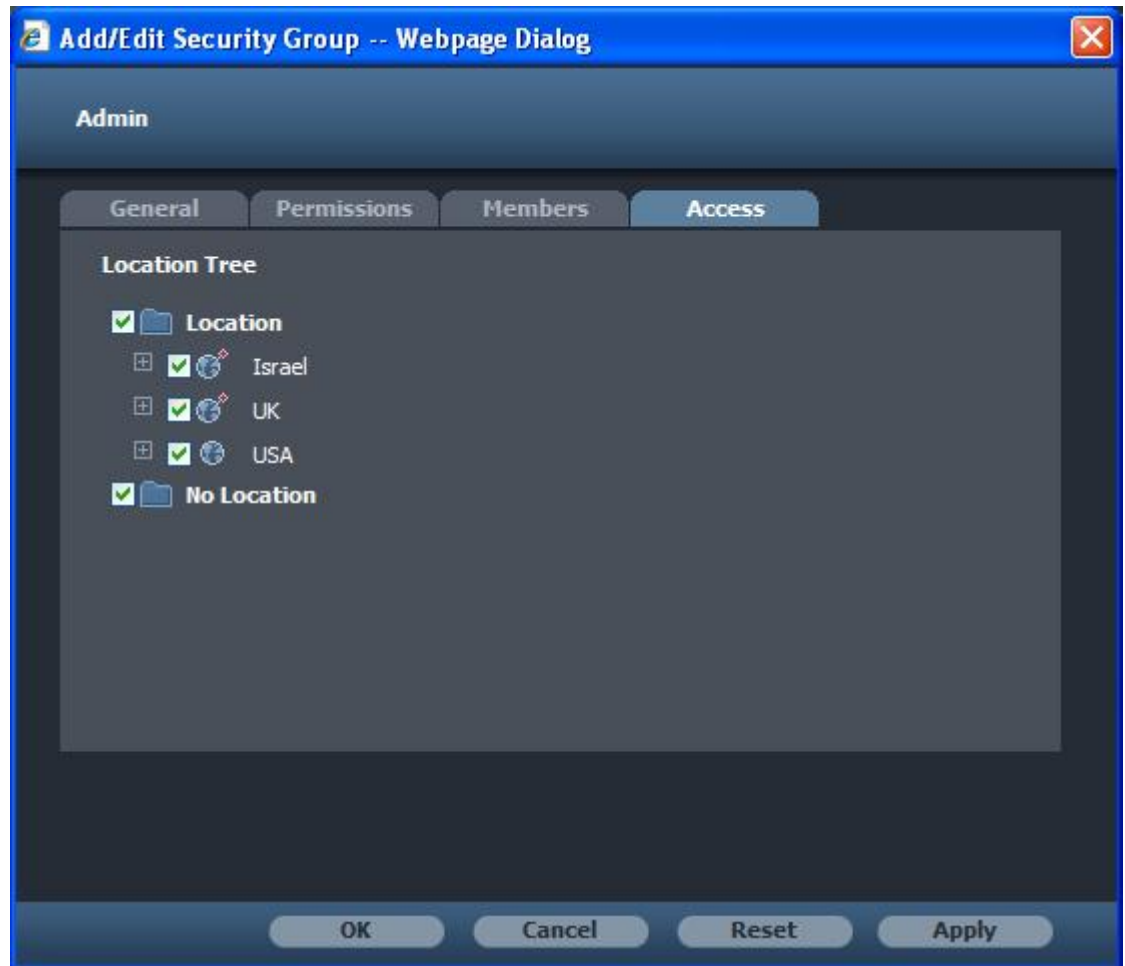
The Location access tree is limited to the following elements:

- Country
- City
- Building
- Floor
- Room

- Cubic
- Other (user defined)
- Rack

## Access Permission

To grant permission, click **Edit**.



*Figure 360 - PV4E Screen – Settings –Access tab*

When the access permission boxes have been checked, click **Apply** and then **OK**.

The settings have been saved and the screen returns to the **Permissions** tab.

### Location Tree Checkbox

When a high-level box is checked in the location tree, all sub elements beneath it are automatically selected. The user must then deselect any checkbox where access permission is not granted.

When deselecting a checkbox, all elements beneath it are automatically deselected.

*No Location* is treated the same as any other location.

Only the Administrator or a user with Administrator rights can create and modify users and can view and edit location access to users.

The set default is the entire location tree for each user group and individual user.

**Note:**

*All users, regardless of their permissions, are able to view all the organizations' devices, locations and links.*

## Validating User Access Permissions

The location access for a user is derived from the user location permissions and the group location permissions to which the user is assigned.

A user can access a location if they have the following access permissions:


- as a member of a group to which they are assigned
- as an individual user
- or have their own access permissions

## Edit Link

Users can only edit a link if they have access to ALL the devices that create a link.

The links to which the user does not have permissions (i.e., the user does not have access permissions to one or more items in the link) will be disabled and marked with no entry signs in the Edit Link window.

The following example shows a user with no access permissions to the location in which "Switch-01" is located. The tool bar command options at the foot of the window are disabled.

The dark red no entry sign  indicates an item to which the user does not have access permissions.


The light red no entry sign  indicates an item that is connected to an item with no location access permissions. See the follow example link:



Figure 361 Edit Link - Location Tree

Figure 91 shows a situation where the user has access permissions, since there are no no-entry signs. See following explanation.



Figure 362 - Edit Link

If a user tries to Edit Link from the Location tree of the Maintenance screen:

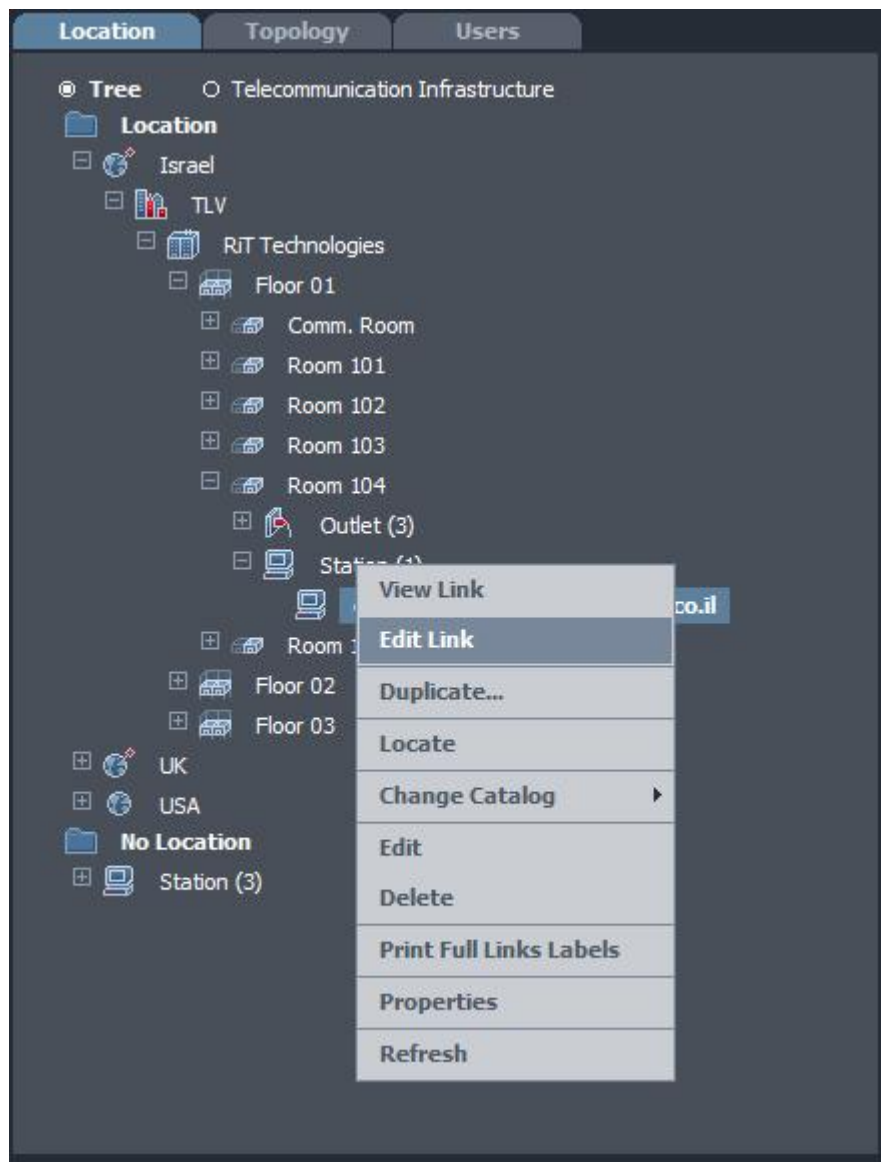


Figure 363 - Maintenance Screen - Location Tree

The following error message is received:

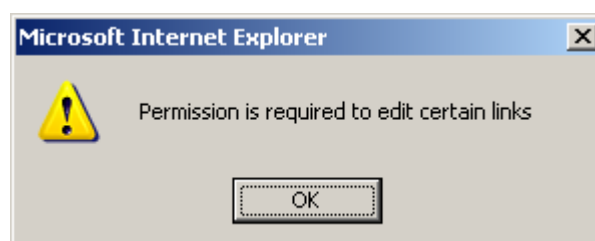


Figure 364 - Error Message

## Move Rack Location

Whenever changing a rack location or moving a location, the access permissions for the rack/location is determined by the parent and children of the new location. If all the sub locations of the parent location are checked, the moved rack/location is also checked.

## **Create a New Rack/Location**

The process is the same as moving rack/location.

## **Import a Location**

The process is the same as moving rack/location.

## Chapter 14: PV4E General Information

### Active Directory Integration

New in version 6.0 is the *Active Directory* application.

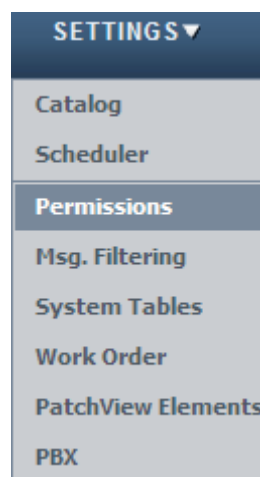
*Active Directory* is basically a central repository that contains a subset of user information and passwords and identifies access to network resources.

After you have entered your user name and password, *PatchView* sends a confirmation request to the *Active Directory* server which then confirms whether you are permitted to log onto *PV4E*.

**Note:**

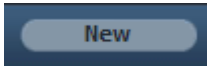
*Users can be defined either in the Active Directory or PatchView application, but not both!*

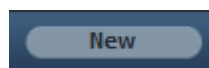
- > **To add a user to the *Active Directory* application, do the following:**
  1. From the *Settings* menu, select **Permissions** from the drop-down menu.



2. Click the *User* tab.



3. Click  at the foot of the screen on the left-hand side. The following screen opens at the *General* tab:



**Add/Edit Security User -- Webpage Dialog**

**General** | Membership | Email | Access

☒ **PatchView**   ☐ Active Directory

Name:

Full Name:

Password:

Confirm Password:

Password Expires After:

Password Never Expires: ☐

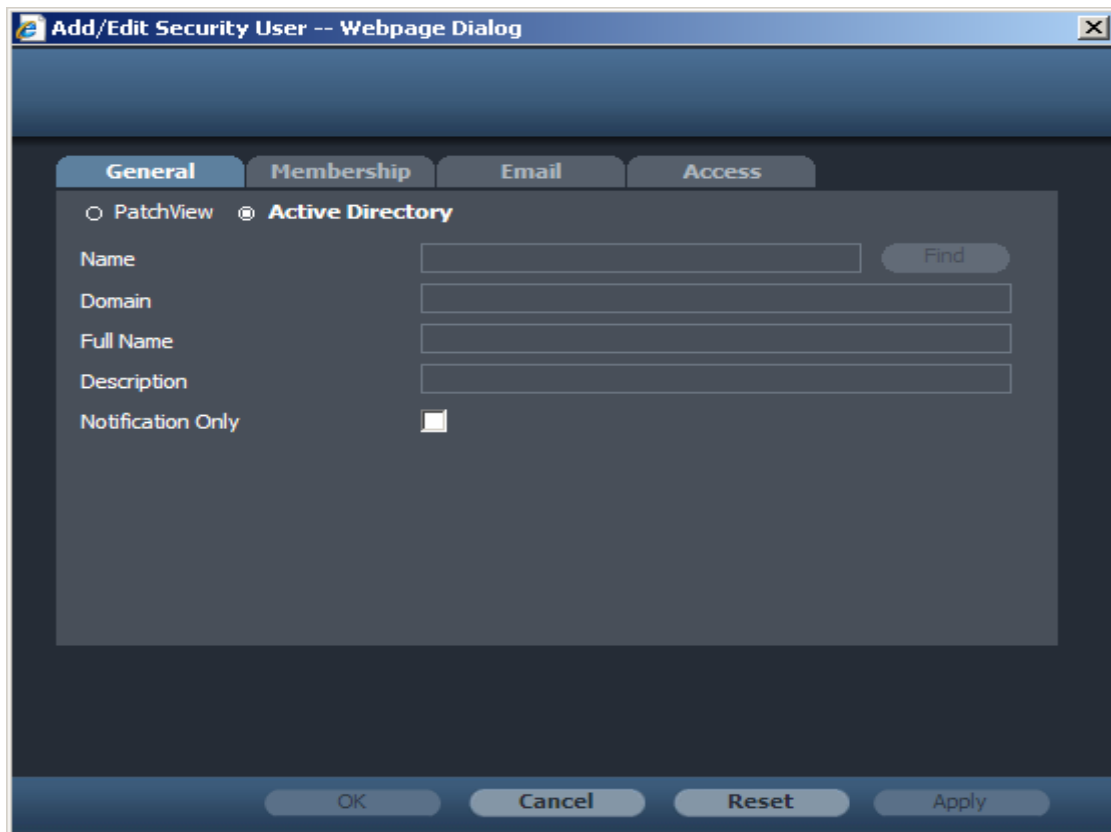
Change Password at Next Login: ☒

Description:

Notification Only: ☐

OK   Cancel   Reset   Apply

4. To obtain specific user information, click the **Active Directory** radio button. The following screen opens:



5. Type in full or part of the user's name in the *Name* field. You can use a wildcard (\*) when typing part of the user name.
6. Click *Find*. If the *PV4E* server is in the same domain as the *Active Directory* then *PV4E* displays all the user names which meet the search criteria.
7. Select the relevant name and click **OK**. *PV4E* automatically updates the user's name, full name and the domain.
8. If the *PV4E* server does not share the same domain as the *Active Directory* you will receive the following error message when you click **Find**:



**Note:**

*The Email address of the user is imported into PV4E and additional mail address can be added*

**Note2:**

*User permission level in the active directory doesn't effect PV4E's permission level.*



## System Information

The *System Info* tab contains information about Licenses, Users, Ports and the status of your PV4E application.

The *System Info* tab contains information such as how many ports are in use, how many are managed, total ports in use and the total of managed ports in use.

Use the right-hand scroll bar to scroll down and view the status of each application.

To view the *System Info*, click the *Tools* tab and select *System Info* from the drop-down menu.



## System Status

The *System Status* tab contains information about the current state of your system.

Stand on an item in the *System Status* tree. The information pane (on the right-hand side) displays information relating to the selected item. Click the hyperlink to open the *View Inventory* dialog box to get more information.

To view the *System Status*, click the *Tools* tab and select *System Status* from the drop-down menu.

The screenshot shows the PV4E web interface in a Windows Internet Explorer browser. The top navigation bar includes tabs for MAINTENANCE, WORK ORDER, TOOLS, SETTINGS, REPORTS, and HELP. The TOOLS tab is active, and its dropdown menu is open, showing options like Auto-Detect, PBX Import, Import from a File, Export to a File, Device Locator, **System Status** (highlighted), and Device Authorization. On the left, a tree view shows a hierarchy of locations: Japan, Russia, UK, USA, New York, and No Location. Under No Location, there are two stations: DCS-950G and GANDALF. The right pane displays the details for GANDALF under the 'General' tab. The details include Functional Type (Station), Class (Default Station), Catalog Name (Default Station), IP (15.1.1.110), Status (Manual), Last Activity Date (1/26/2009 5:51), CPU, RAM, Monitor, Power (W) (0), Arm Side (None), Weight (KG) (0), No. of Slots (5), Serial No., and Location (No Location). Below the details are buttons for Locate, Ping, and Edit... An 'Events' section at the bottom has a table with columns for Info, Date/Time, Event Code, and Event Category. The bottom of the interface has a bar with buttons for Action, Delete, Search For, P-LET, Edit Links, and Event Log.

Info	Date/Time	Event Code	Event Category

## Appendix A: Backing-up and Restoring the PV4E Database

This section provides a step-by-step guide to backing up the PV4E Database with MS SQL.

PV4E is based on a SQL relational database, which requires that the database has to be backed up occasionally to save your data. These functions are conducted through the MS SQL Enterprise Manager and must follow a specific procedure.

The PV4E Service must be stopped prior to backing-up the database.

### Stopping the PV4E Service

The PV4E service can be stopped from either the PV4E Server Control icon or from the Control Panel.

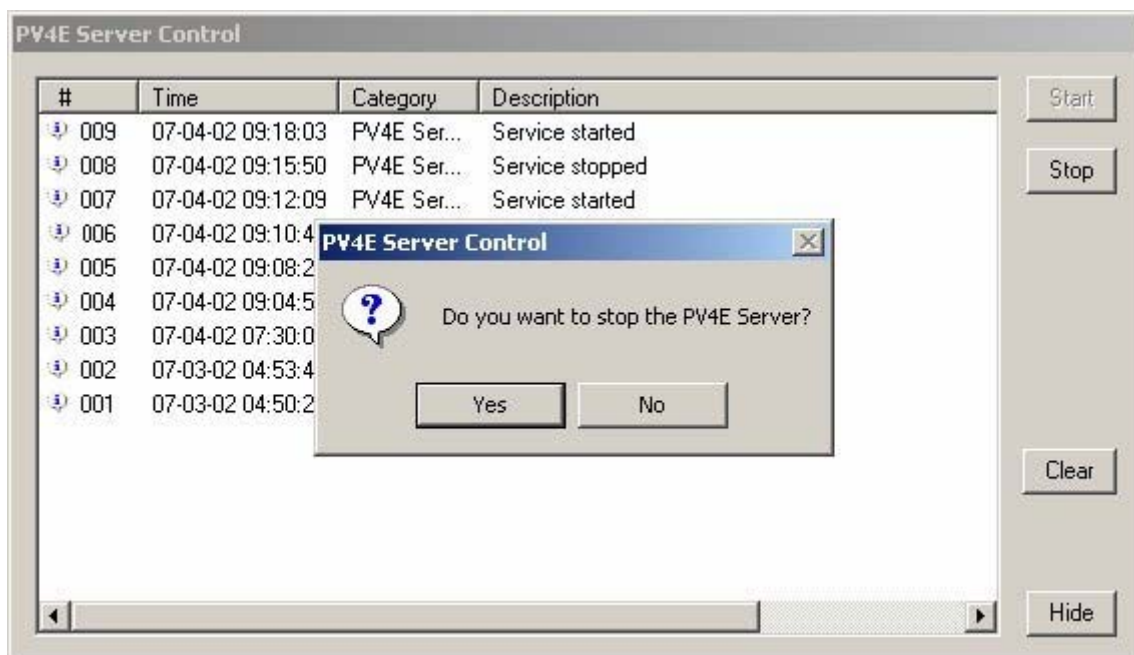
#### To stop the PV4E Server from the PV4E Server Control icon

1. On the Status Bar double-click the PV4E Server Control icon.




The PV4E Server Control window opens.

2. Click the Stop button.



Figure

3. A box opens requesting confirmation. Click the Yes button to stop the PV4E Server. Wait for the Stop button to 'Grey out'.
4. Click the Hide button.
5. A red X appears on the PV4E Server Icon in the Status Bar indicating that the service has been stopped .

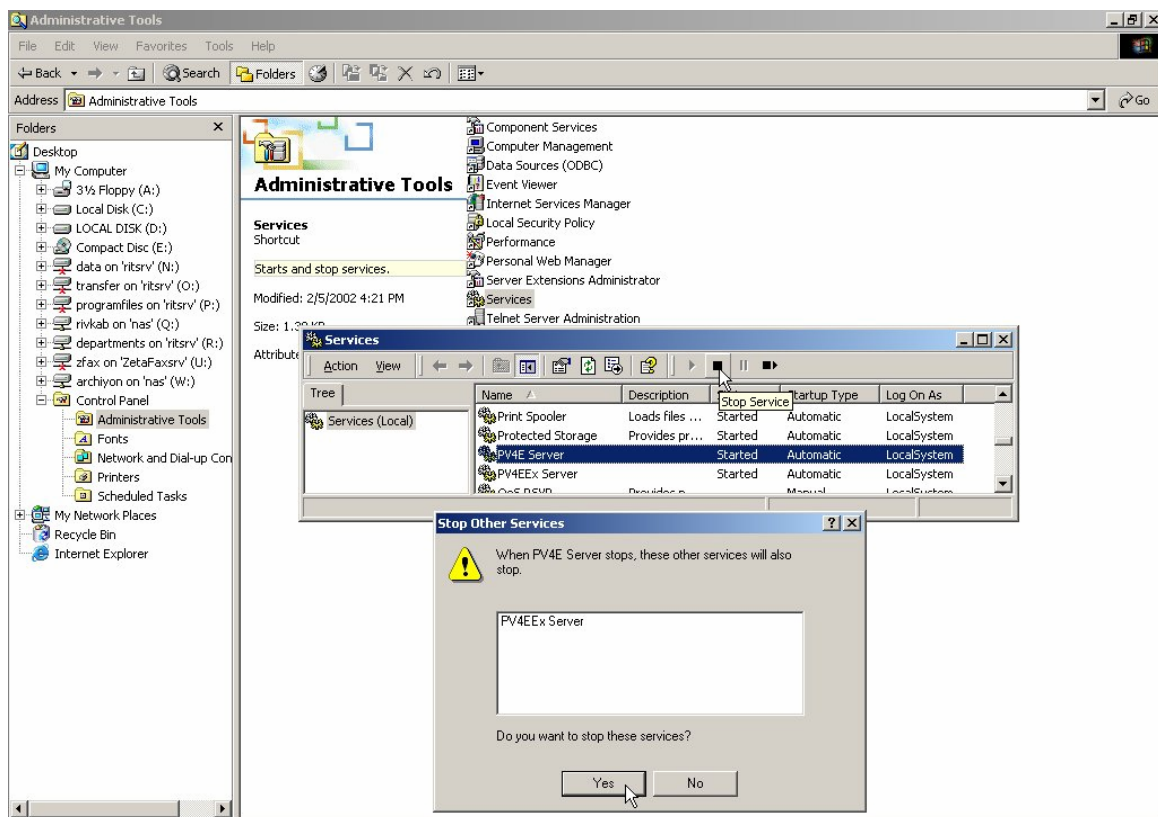
### To stop the PV4E Server from the Control Panel

1. From the **Start Menu**, select **Settings** and choose **Control Panel**. The **Control Panel** window opens with a list of components.
2. Double click on Administrative Tools.
3. Double click on Services.
4. In the list of services, select PV4E Server.
5. Click the Stop Service button.




The **Stop Other Services** dialog opens.

6. Click the Yes button to stop the PV4E Server.



Figure

The Status of the server will be blank.

7. Close the Control Panel window.
8. A red X appears on the PV4E Server icon in the Status bar indicating that the service has been stopped .

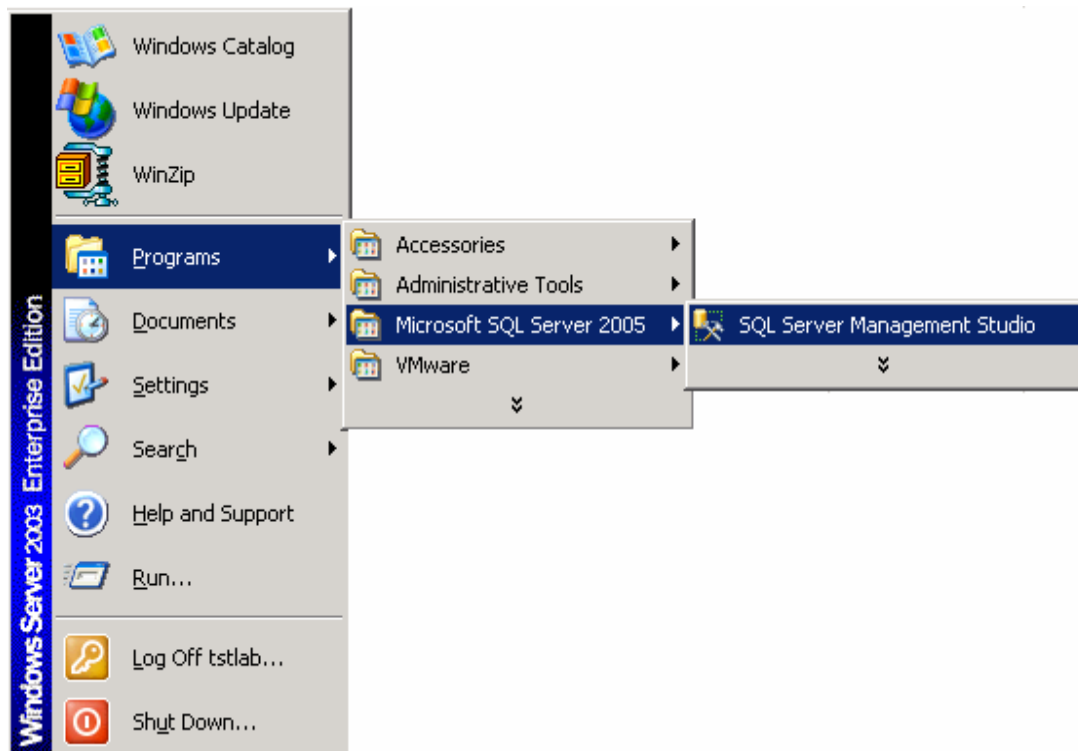
## Backing-up SQL Database versions 2005 and 2008

The procedure for backing-up the database is the same for both SQL 2005 and 2008.

### To back up the Database

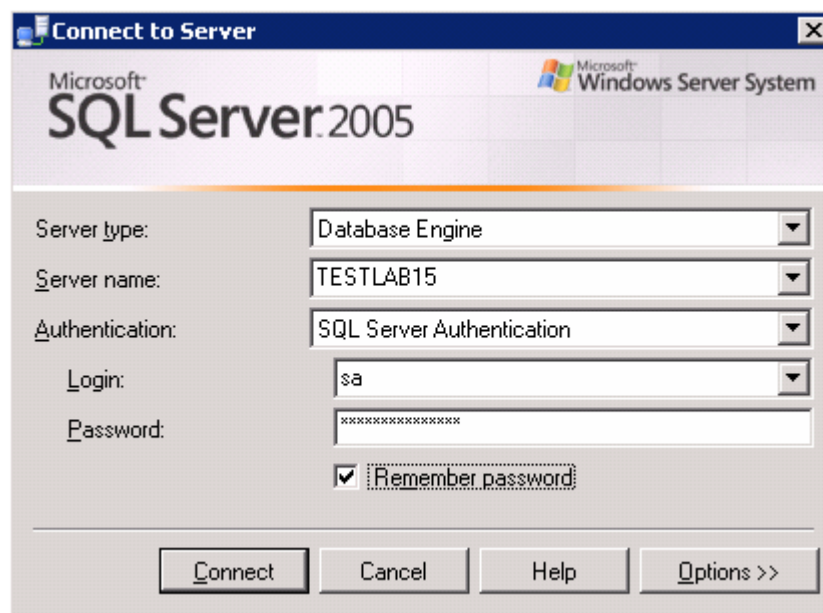
1. From the **Start Menu**, select **Programs**.

2. Select Microsoft SQL Server 2005.
3. Select and click *SQL Server Management Studio*.



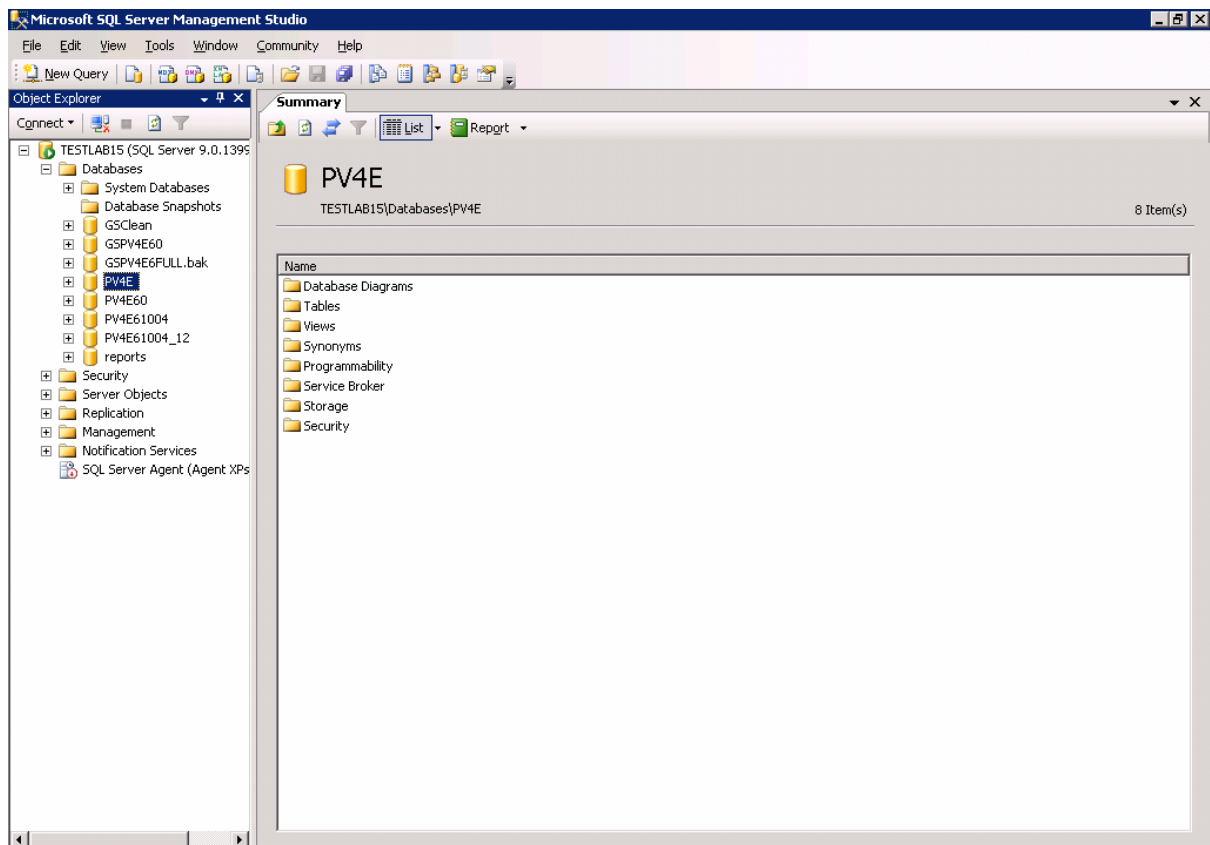
Figure

The *SQL Server 2005* screen opens.

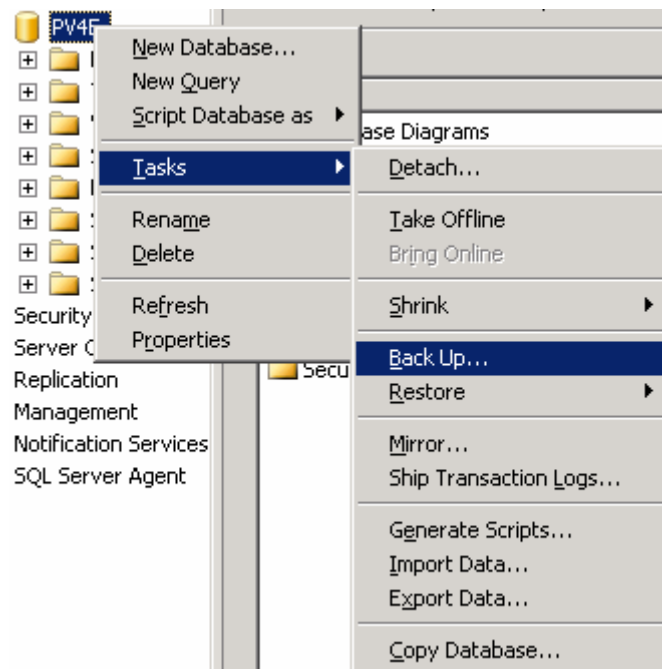


Figure

4. Enter the *Server type*, *Server name*, *Authentication*, *Login* and *Password*. Click **Connect**. The following screen opens:

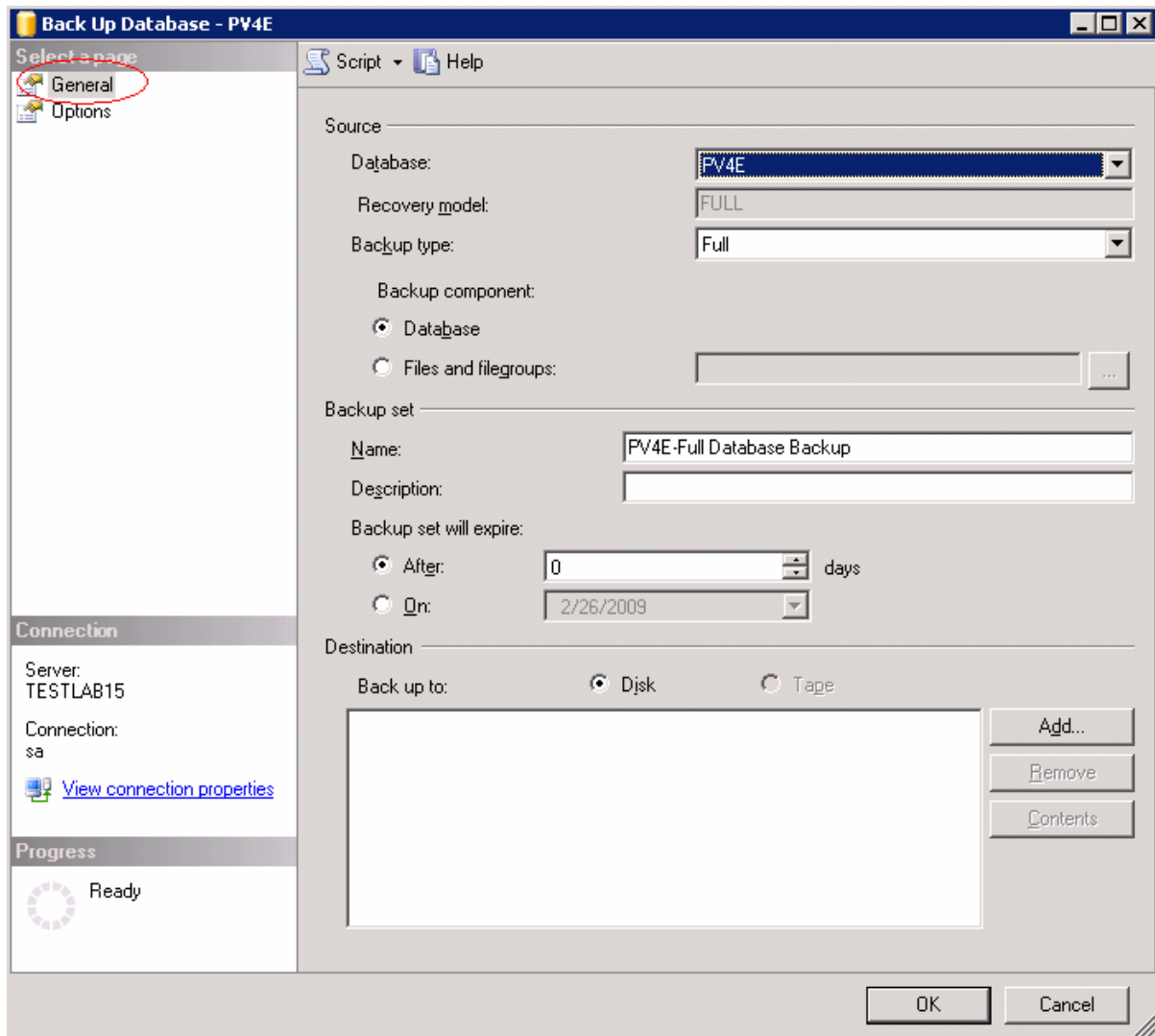


5. Expand the *Databases* section of the tree until you arrive at *PV4E*. Stand on the PV4E folder and right-click: From the context menu select >**Tasks** > **Backup Database**.



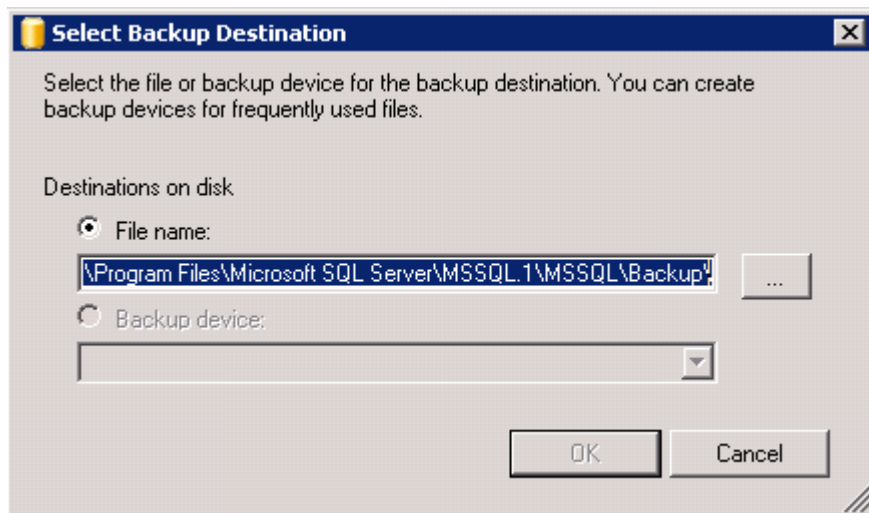
Figure


The *Back-Up Database - PV4E* screen opens. The screen opens by default at the *General* tab.



Figure

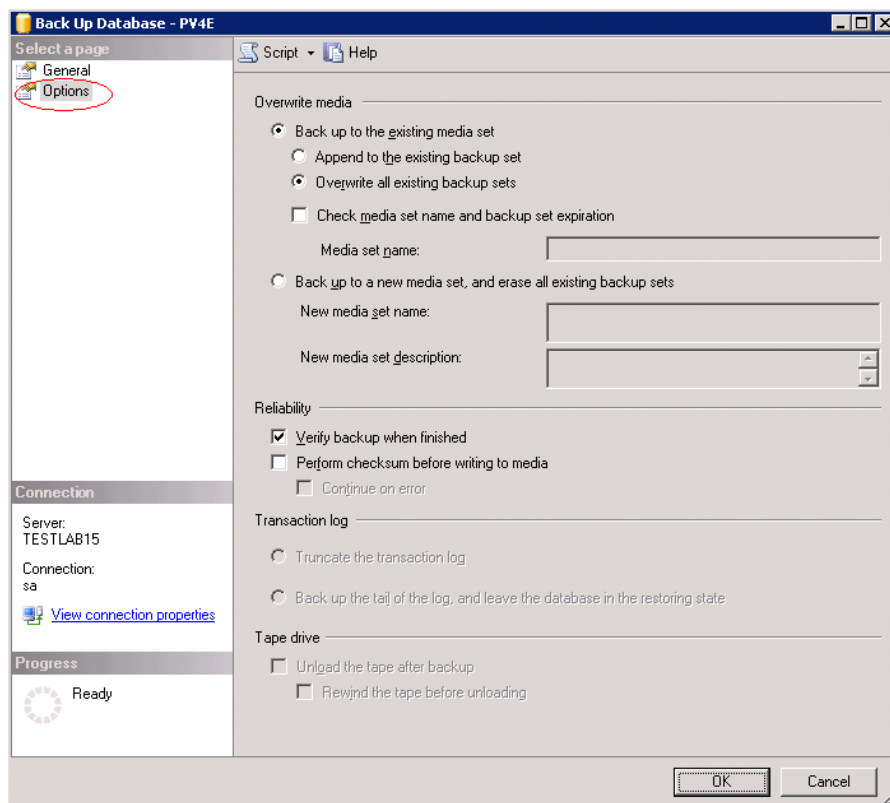
6. In the *Database* field enter *PV4E* since this is the database you are backing up.
7. In the *Backup type* field select **Full** from the drop-down menu.
8. Ensure that the *Destination* window is empty. If not, select the current database backup file displayed in the window and click **Remove**. The Destination window will now be empty.
9. Click **Add** to select a backup destination. The following *Select Backup Destination* window opens:



10. In the *File name* field, specify the path of the destination file and the file name of the *Backup Set*, or click the ellipsis . A *Locate Database Files* window opens. Click the destination location on the tree, the path name appears in the *Selected Path* field. Enter a file name.

11. Click **OK**.

12. Click the *Options* tab:



13. In the *Overwrite Media* section check the following radio buttons:

**Back up to the existing media set.**

**Overwrite all existing backup sets.**

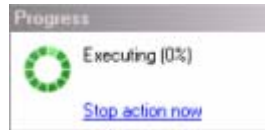
14. In the *Reliability* section it is highly recommended that you check the radio button:

**Back up to the existing media set.**

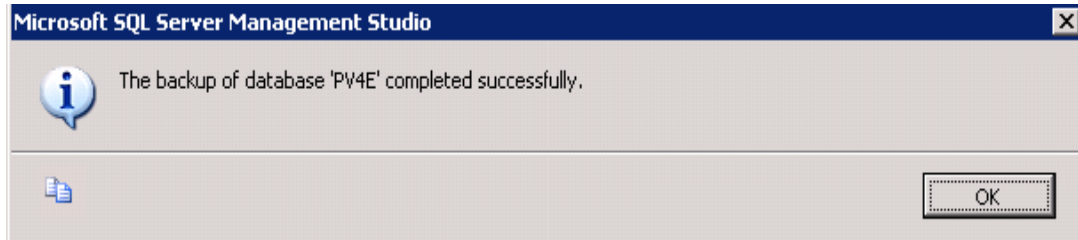


15. Click **OK**.

16. The backup process begins and the following progress is displayed:



17. The following message appears after the PV4E database has been successfully updated:



**Note:**

*If the Restore Function is to be used directly after the Back-up, **do not restart the PV4E server until the Restore process has completed.***

## Restoring the SQL Database for Versions 2005 and 2008

You must stop the PV4E server before starting the restore SQL database process. Refer to the section Stopping the PV4E Service.

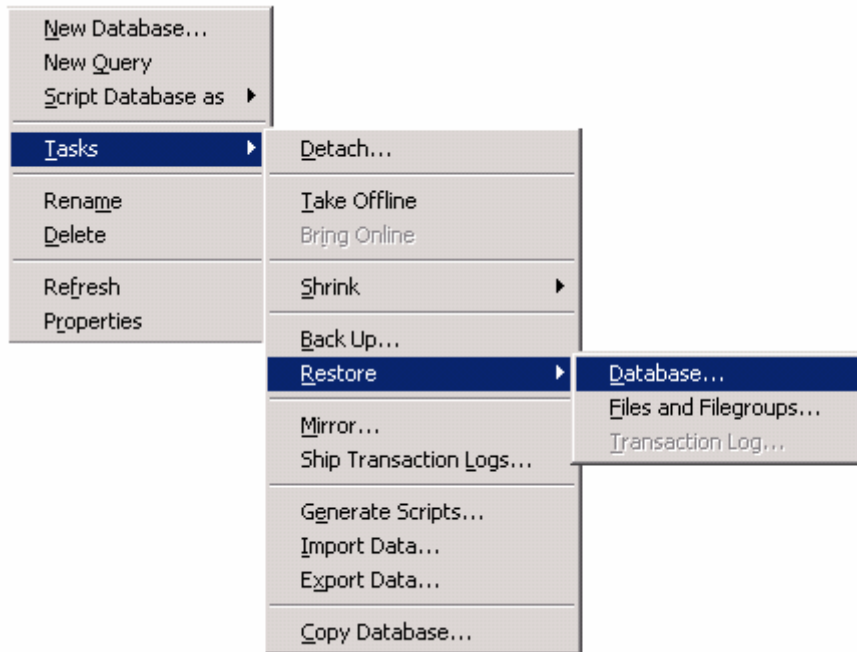
**Note:**

*The Restore Function can only be used with backup files that were created using the same version of PV4E and SQL.*

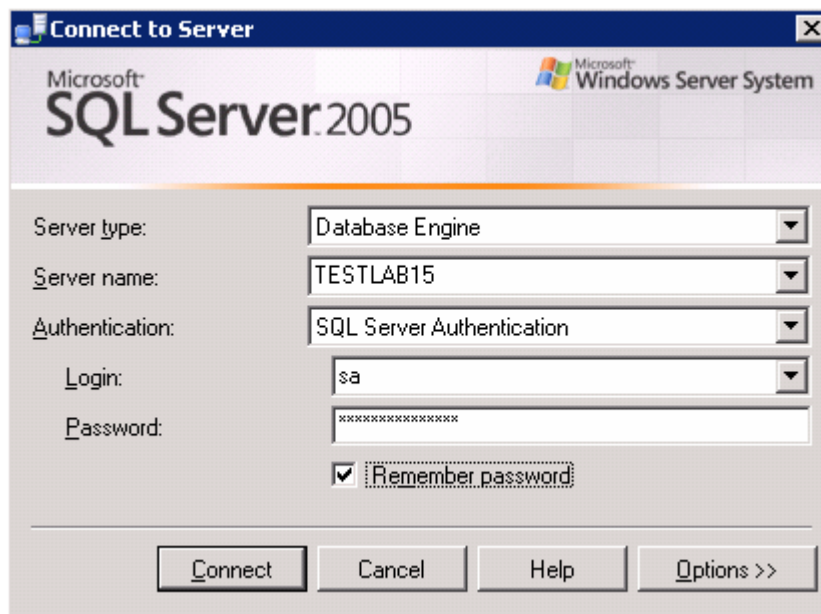
### To restore the Database

Verify that the **PV4E Server** has been stopped. (See above).

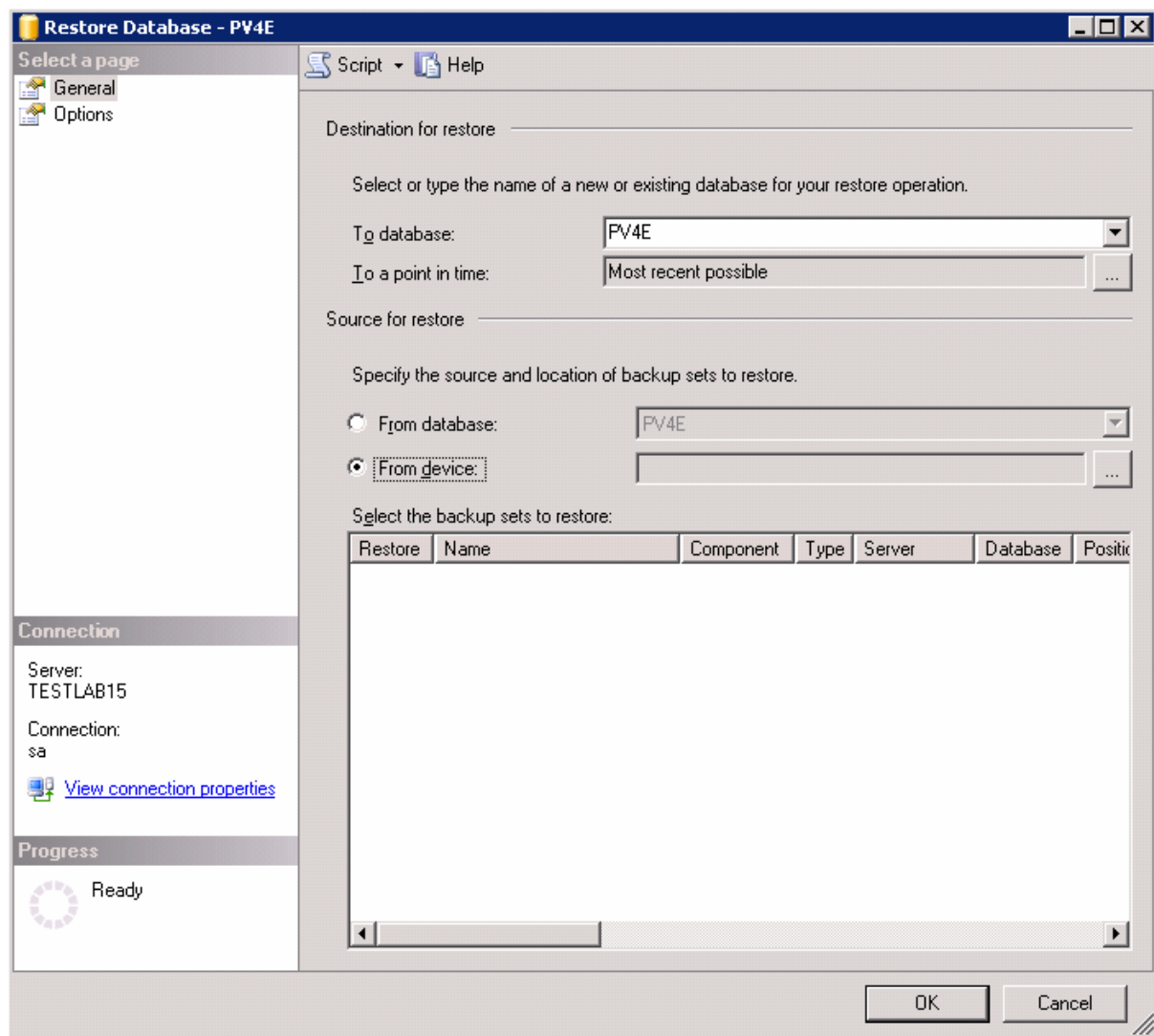
1. From the *Start Menu*, select **Tasks > Restore > Database**.




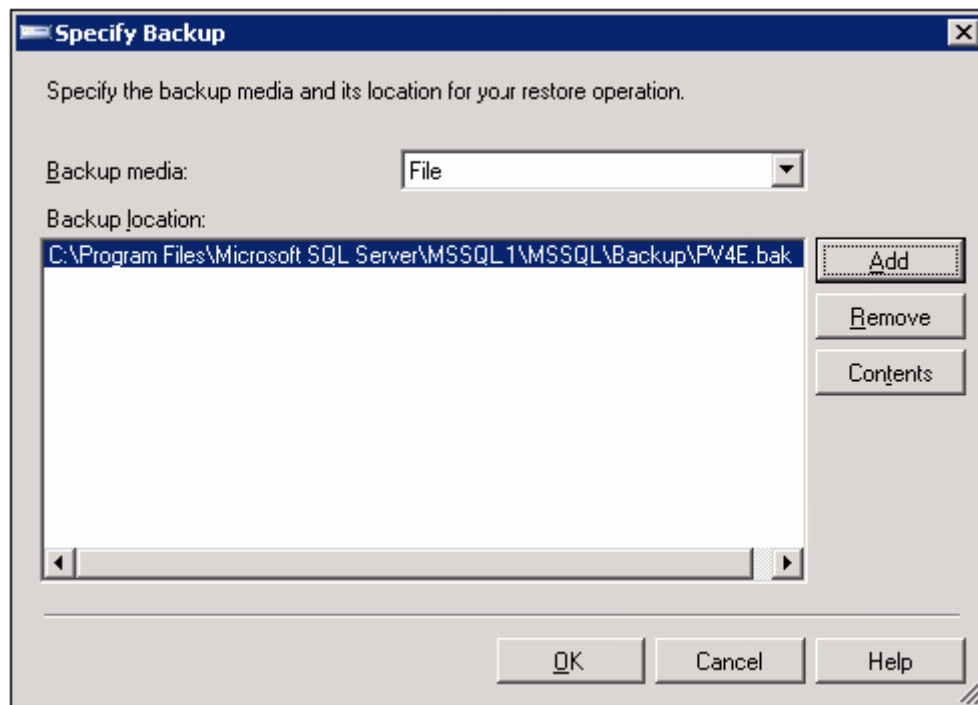
2. The following *Connect to Server* screen opens:



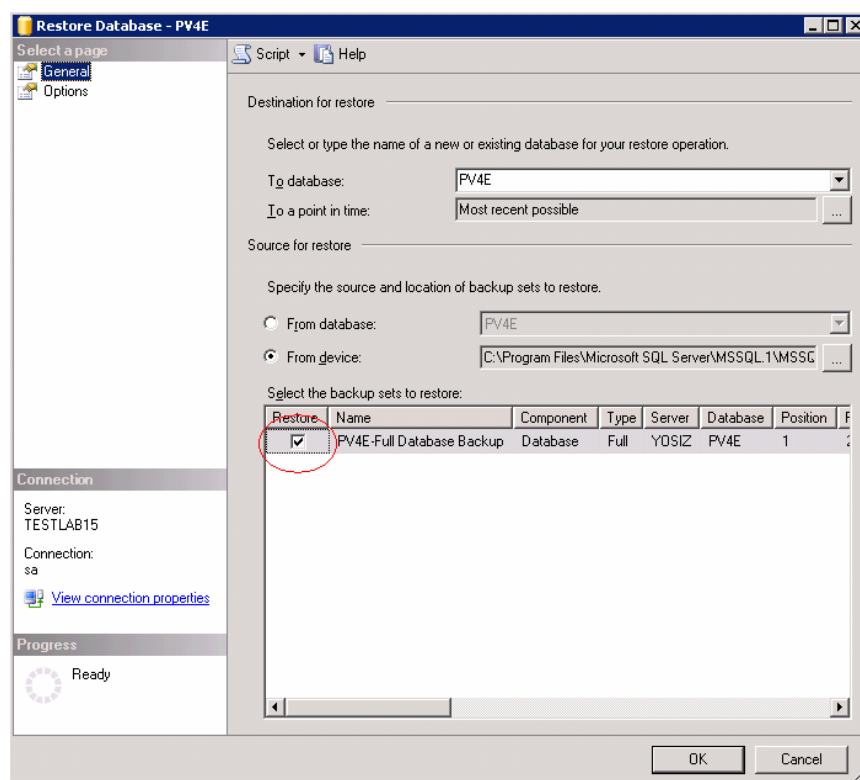
3. Enter Server type, Server name (of where the PV4E server is installed), Authentication, Login and Password. Click **Connect**.
4. The *Restore Database PV4E* screen opens at the *General* tab by default:



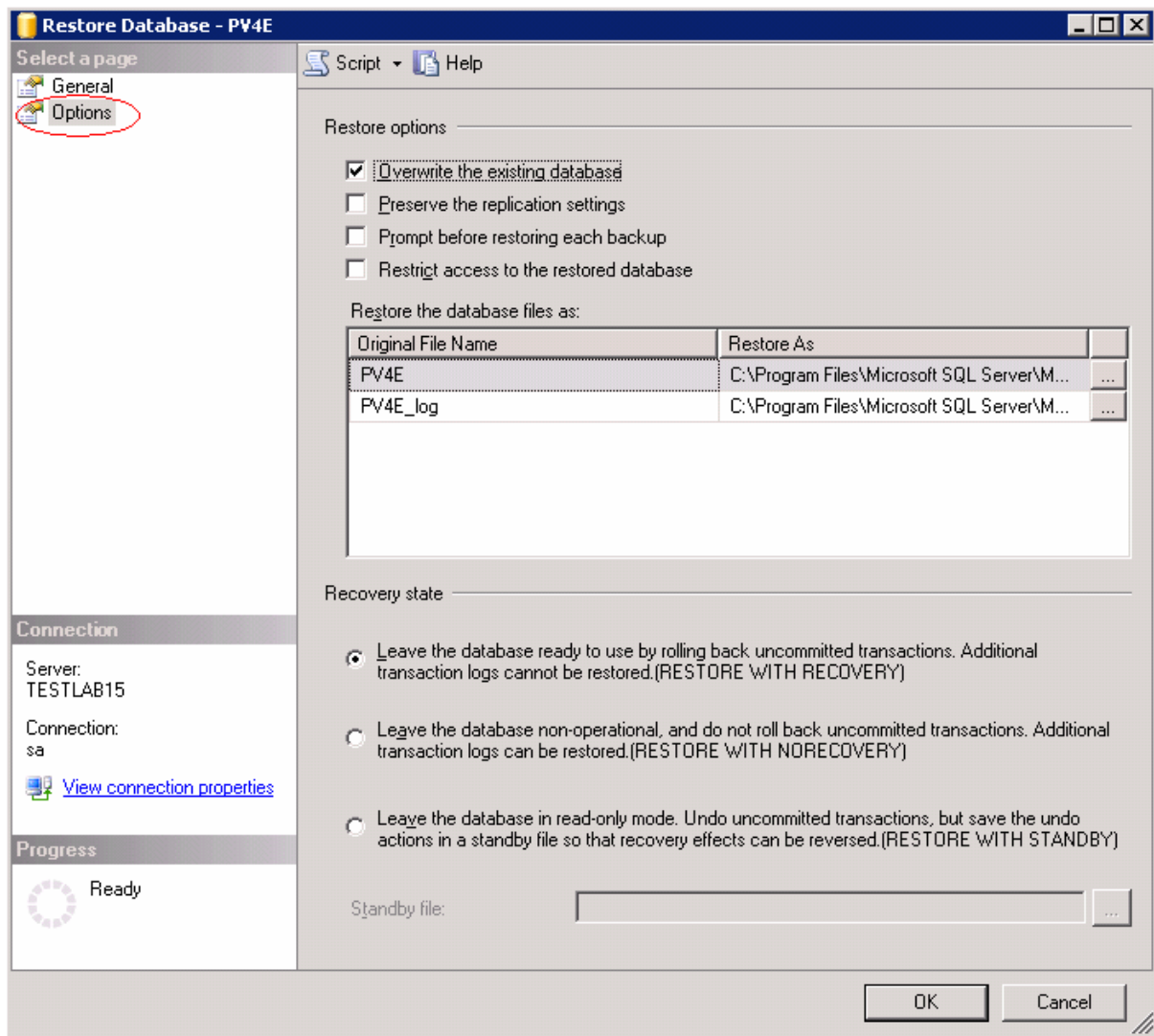
5. In the *Destination for restore* field, select **PV4E** from the drop-down menu.
6. In the *Specify the source and location of backup sets to restore* field, select **From Device**. To select the database you wish to restore, click the ellipsis 
7. The following *Specify Backup* window opens:



8. Click **Add** and select the path.
9. Click **OK**.



10. Make sure that you check the radio button for the backup you wish to restore (see above).
11. Go to the *Options* tab.



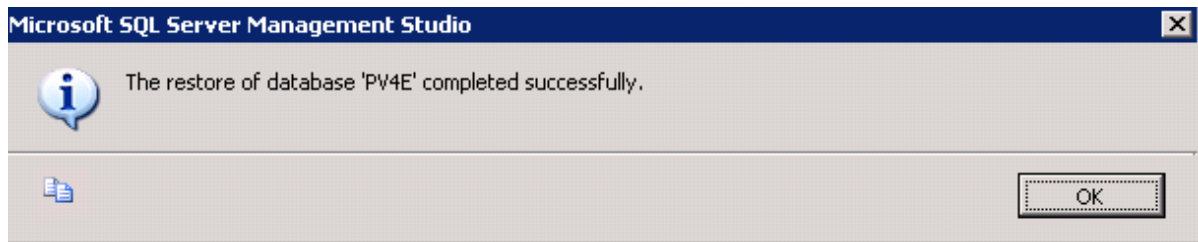
12. In the *Restore options* field, select **Overwrite the existing database**.
13. In the *restore the database files as* field the path must be in the same place where the *PV4E SQL* database resides.
14. Click **OK**.
15. A progress window appears on the left hand-side of the screen:



16. If you encounter a 'database is in use' error at this stage, stop and then start the SQL server and restore the database.

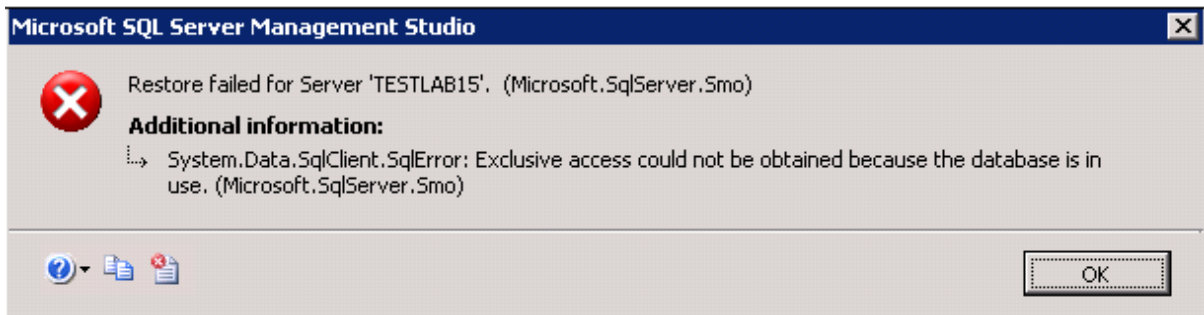
Please refer to the *Troubleshooting* section for more information.

The following message is displayed after the *PV4E* database has been successfully restored:



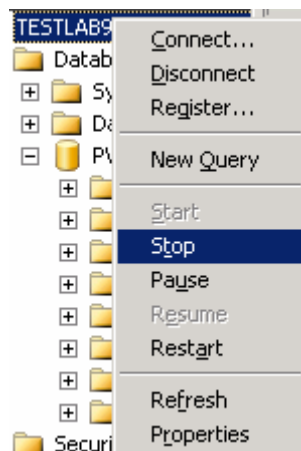
## Troubleshooting

If you receive the following error message after step 16 above, you must stop and restart the SQL server.

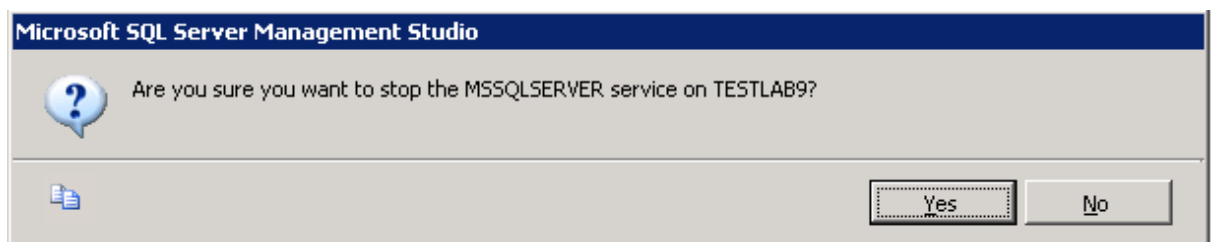


## Stopping the SQL Server

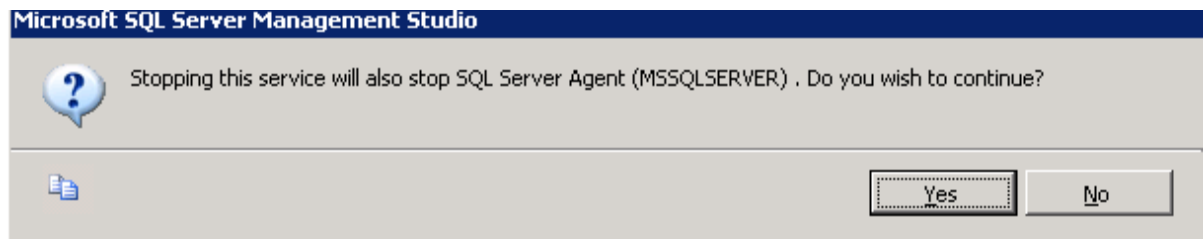
1. Open the *Microsoft SQL Server Management Studio*.



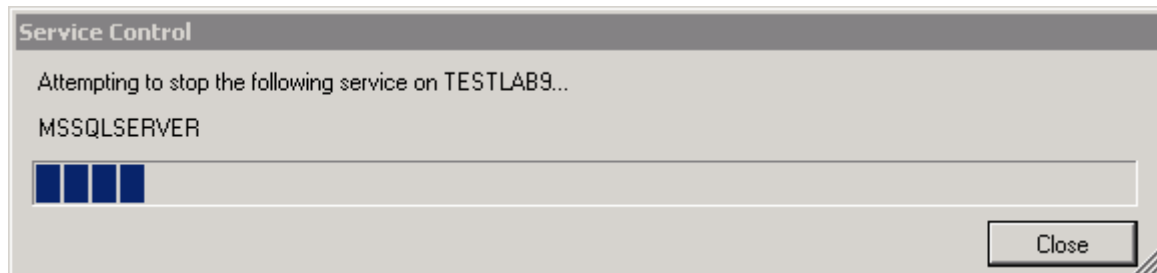
2. On the location tree, right-click the relevant server folder > select **Stop** from the context menu. The following prompt appears:



3. Click **Yes** to stop the Server.
4. The following prompt appears:



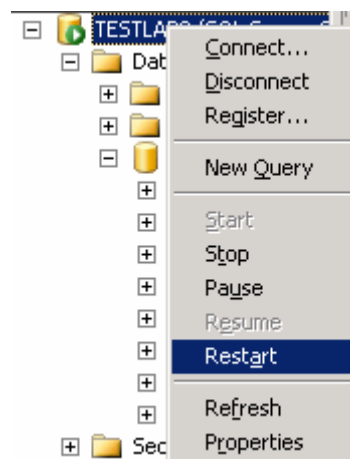
5. Click **Yes**. The following dialog box appears:



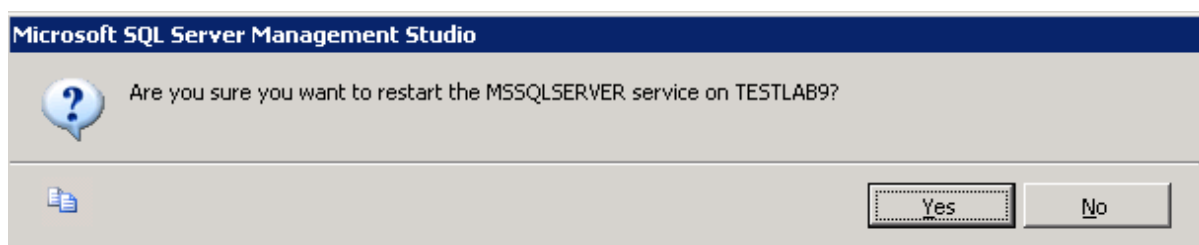
6. Click **Close** after the server has been stopped.

## Restarting the SQL Server

1. Open the *Microsoft SQL Server Management Studio*.



2. On the location tree, right-click the relevant server folder > select **Restart** from the context menu. The following prompt appears:



3. Click **Yes** to restart the Server.

## Appendix B: Glossary

This Glossary contains abbreviations and terminology used within context of the PatchView for the Enterprise application.

Terminology	Description
Adapter	Adapters such as Modems and Network Interface Cards (NIC) are assigned to stations to enable the stations to connect to the network.
Auto Detect	A feature of the application that automatically detects the connectivity of the LAN Equipment devices in the network.
Auto Naming Wizard	A wizard that allows you to automatically give each item in a group of similar items a unique name. The parameters have to be specified.
Break link	Breaking a link means disconnecting an existing link between network components.
CAD	Computer Aided Design
Call Manager	The Call Manager processes information from IP Phones.
Catalog	The Catalog of PV4E contains a detailed list of all available components that can be assigned to a specific location.
Channel	A communication path between the user station and the switch at the wiring closet. The channel includes the connecting elements.
Classes	Item types are subdivided into classes. Each inventory item is classified according to classes.
Client	The PV4E client is an application that runs on a personal computer or station and relies on a server to perform some operations.
Client Components	PatchView for the Enterprise components installed on Client stations.
Client/Server SQL Relational Database	A database management system (DBMS) that can respond to queries from client stations. PatchView for the Enterprise uses the Microsoft client-server database application called SQL Server.
Connecting Hardware	Refers to copper or fiber optic hardware items such as communications outlets and patch panels used to physically connect components of the network.



<b>Terminology</b>	<b>Description</b>
Connectivity	A device's ability to link with other devices in the network.
Connector	The part of a cable that plugs into a port to connect one device to another.
Control Pad	A device connected to a scanner that allows the person performing the on site wiring changes to activate the physical link change process.
Equipment	Equipment includes network elements such as hubs, switches, routers, as well as telephone network elements. PatchView Master Scanners, Satellite Scanners, Master Expanders, Expanders, and peripheral equipment such as control pads and security controllers are also classified as Equipment.
Full link	A link from a Station or Device to the Network Equipment is defined as a Full link.
Indicator Controller	The PVMax Indicator Controller is a subset of the PVMax Security Controller and works independently when connected to a PVMax Master, Expander or Master Expander. It is used solely to activate the Rack Indicators
Indoor Backbone	Satellite Scanners and their associated Patch Panels located in other communication rooms within the same organization.
Inventory	The Inventory contains all the network components actually used in your project.
IP Address	A numerical identifier for a computer or device on a TCP/IP network.
Item	An element of the network.
Item type	An Item type is a classification according to which you sort Library and Inventory items.
KVM (Keyboard, video, mouse)	A device that enables a station and monitor to be connected, even if they are not in the same location.
LAN	Local Area Network.
LAN Equipment Device	Devices used to connect the Local Area Network such as Switches and Routers.
LANMapper	A module of the P-LET feature. It discovers all active devices in the network and their subnets.

<b>Terminology</b>	<b>Description</b>
LANServer	LANServer will locate all the devices that were detected by LANMapper.
LED	Light Emitting Diode
License Agreement	The Agreement signed with RiT to register the PatchView for the Enterprise application. Each client/server component is assigned a License Number.
Link (Alternative)	An alternative link is given to the user for Moves, Adds, Changes, Swap and Remove operations
Link Concept	Links refer to the physical connection between items in the network, such as between a Station and an Outlet or between an Outlet and a Patch Panel.
Local Connectors	Satellite Scanners and their Patch Panels connected directly to the Master Scanner, usually equipment located in the same communication room.
Location	Location refers to the physical location of each Inventory item in the project. For example rooms, floors and premises.
Location Tree	The hierarchical representation of all the locations in your organization's network.
Logs	Logs record events occurring in the system. The events are displayed in Log files.
MACSR	Moves, Adds, Changes, Swap, Remove of items in the network.
MAC Address	Media Access Control. A protocol that defines the way workstations are identified within the LAN.
Modular Scanner System	Electronic scanners scan all panels in the network and receive information from the ports about port connectivity. The scanner system includes both Master Scanners and Satellite Scanners.
Navigation Tree	A graphic representation of the hierarchy of the database. It is divided into two main subtrees, namely Library and Inventory.
Network Management	Network Management refers to the broad subject of managing computer networks.
NIC	Network Interface Cards

<b>Terminology</b>	<b>Description</b>
NMS	Network Management System. A PC running PatchView for the Enterprise.
NQ	Network Equipment
Outdoor backbone Connectors	Satellite Scanners and their associated patch panels located elsewhere in the project organization. For example in different buildings.
P(A)BX	Private (Automatic) Branch Exchange
PABX	Private Automatic Branch Exchange
PatchView Components	PatchView items patented by RiT such as Masters, Scanners, Expanders, Master Expanders, Patch Panels, security controllers, and the Smart cabling system.
PatchView for the Enterprise (PV4E)	A physical layer network management application.
Physical layer	The seventh layer of the OSI communication model referring to the physical means of putting the data on the network.
Policies (Provisioning)	A set of rules required by the system for the calculation of the required patch work and any additional considerations required for the creation of the Work Order MACs operations and are device oriented
P-LET	Pro-active LAN Equipment Topology. A network tracking system that discovers and recognizes connectivity changes of all active Stations in the network.
Profiles (Provisioning)	A template for the MACs operation. Typically, each department has its own profile for the department.
Project	The Project is the logical representation of your entire network. All network components including hardware, software and connecting components are defined and stored in the Project database.
PSAP	Public Safety Answering Point
PV4E	PatchView for the Enterprise
RiT	RiT Technologies.
Security Controller	Enables control of various sensors and remote-controlled devices from the PatchView Management Station

<b>Terminology</b>	<b>Description</b>
Security Group	User rights to system resources are assigned to a group for security purposes. Each user in the group has the rights given to the entire group.
Security Settings	Security Settings control which users or groups of users are authorized to use the system and its resources.
Server Components	PatchView for the Enterprise components installed on Server stations.
Site	A locally defined area for network purposes.
SitePro	A hand held device that gives the technician detailed information about tasks that need to be performed in the communication room or data center in real time
SMART Patch Panels	Intelligent Data Communication Patch Panels patented by RiT.
SNMP	Simple Network Management Protocol
Split link	A Split link is a link from two or more Stations to the same Connecting Hardware item (outlet or panel).
Station	A Station refers to any computer or other desktop equipment on the network used as a workstation.
Station Discovery	The P-LET module discovers all stations in the network and identifies each station by Host Name.
STP	Shielded Twisted Pair
Tasks	A task is an action performed by the user
Topology	The Topology of PV4E is defined according to the logical hierarchical structure of the essential equipment needed to operate PV4E.
TQ	Terminal Equipment
Unique ID	The Unique Identification of each item that is used as its reference throughout the database.
Unmanaged Devices	Stations discovered by P-LET and not identified as part of a Full link are classified as Unmanaged Devices.
Unutilized ports	Switch ports where no activity has been detected for a specific period of time are defined as Unutilized ports.

<b>Terminology</b>	<b>Description</b>
Utilization Module	Using the P-LET feature the system scans the ports of all the Switches in the network and collects information of the Station activity at each Switch port.
UTP	Unshielded Twisted Pair
Work Order	Work Orders are instructions for implementing links and other tasks at a site. The Work Order is made up of a series of tasks.
Work Order ID assignment	Work Order IDs can be allocated automatically by the system according to a pre-defined template or given manually by the user when creating the Work Order.
Work Order Module	A system where planners create Work Orders divided into tasks. The module allows for the tasks to be managed.